

AN EXAMINATION OF PSYCHOPATHY, SELF-REPORTED TREATMENT CHANGE,
AND RECIDIVISM IN A SAMPLE OF FEDERALLY INCARCERATED MEN WHO HAVE
SEXUALLY OFFENDED

A Thesis Submitted to the College of
Graduate and Postdoctoral Studies
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy
in the Department of Psychology and Health Studies
University of Saskatchewan
Saskatoon, Saskatchewan

By
Carissa M. Augustyn

Permission to Use

In presenting this thesis/dissertation in partial fulfillment of the requirements for a Postgraduate degree from the University of Saskatchewan, I agree that the Libraries of this University may make it freely available for inspection. I further agree that permission for copying of this thesis/dissertation in any manner, in whole or in part, for scholarly purposes may be granted by the professor or professors who supervised my thesis/dissertation work or, in their absence, by the Head of the Department or the Dean of the College in which my thesis work was done. It is understood that any copying or publication or use of this thesis/dissertation or parts thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the University of Saskatchewan in any scholarly use which may be made of any material in my thesis/dissertation.

Requests for permission to copy or to make other uses of materials in this thesis/dissertation in whole or part should be addressed to:

Head of the Department of Psychology
9 Campus Drive
University of Saskatchewan
Saskatoon, Saskatchewan, S7N 5A5,
Canada

Dean
College of Graduate and Postdoctoral Studies
University of Saskatchewan
116 Thorvaldson Building, 110 Science Place
Saskatoon, Saskatchewan, S7N5C9,
Canada

Abstract

The treatment of individuals high in psychopathic traits has been a topic of considerable debate. There is growing evidence that when provided with appropriate services and assessed using outcome variables relevant to offender rehabilitation, individuals with psychopathy are amenable to change. The current research explored the extent to which individuals with prominent psychopathic traits exhibited changes on various self-report measures, administered in real time during a high intensity sexual offending treatment program. The primary goal of the research was to expand the literature's knowledge of the associations between psychopathy and treatment change, including whether changes are risk-relevant (i.e., linked to recidivism).

In Manuscript 1, treatment change was assessed using a battery of instruments measuring various psychological and risk-relevant constructs relevant to sexual offending. A pattern of conceptually meaningful associations emerged between scale scores and psychopathy facets, with scales reflective of cognitive and behavioural aspects of anger and hostility demonstrating the most consistent relationships with psychopathy. Treatment change was differentially associated with the various psychopathy facets. Notably, antisocial and interpersonal scores were linked to positive treatment change while affective and lifestyle scores were generally associated with reduced treatment change. Changes in self-reported hostility and aggression were associated with reduced post-treatment recidivism rates, however, only endorsement of physical violence emerged as uniquely predictive after controlling for psychopathy.

Manuscript 2 focused on post-treatment changes in general criminal attitudes, measured using the Criminal Sentiments Scale (CSS). Study findings revealed overall greater endorsement of criminal attitudes among those higher in psychopathic traits, with the strongest and most consistent associations found between CSS scores and factor 2 (i.e., lifestyle and antisocial) psychopathy traits. While the highest and fastest recidivism rates (violent and general) were observed among individuals high in both psychopathic traits and criminal attitudes, positive treatment change in criminal attitudes was associated with reductions in post-treatment recidivism, particularly for violent outcomes. Positive treatment change remained predictive even after controlling for individual psychopathy scores.

Taken together, the studies are suggestive of positive and risk-relevant treatment change among individuals high in psychopathic traits and support a multifaceted approach to treatment.

Acknowledgements

First and foremost, I would like to thank my supervisor, Dr. Mark Olver, for lending his expertise and providing me with guidance and support in the completion of my dissertation research. I would also like to acknowledge my wonderful committee, Dr. J. Stephen Wormith, Dr. Keira Stockdale, Dr. Phil Woods, and Dr. Tammy Marche for their support and contributions throughout the construction and completion of my dissertation, as well as a special thank you to my external examiner, Dr. Jeffrey Abracen, for his insightful comments and contributions during the defence. Finally, I would like to acknowledge my husband, family, and friends for their unwavering support throughout my graduate studies.

Table of Contents

Permission to Use	i
Abstract	ii
Acknowledgements.....	iii
Table of Contents.....	iv
List of Tables and Figures.....	vii
List of Appendices	viii
Table of Abbreviations	ix
CHAPTER 1. INTRODUCTION	1
1.1 The Impact of Sexual Violence.....	1
1.2 Risk-Need-Responsivity	2
1.3 Psychopathy	4
1.4 Therapeutic Response of Psychopathy.....	5
1.5 Manuscripts.....	8
References.....	9
CHAPTER 2. MANUSCRIPT 1	14
2.1 Abstract	14
2.2 A Psychometric Examination of Psychopathy and Sexual Offending Treatment Change .	15
2.2.1 Measuring Treatment Change	16
2.2.2 Sexual Offending Treatment Change.....	16
2.2.3 Current Study	19
2.2.4 Method	20
2.2.4.1 Sample	20
2.2.4.2 Treatment Program	20
2.2.4.3 Measures.....	21
2.2.4.3.1 Psychopathy Checklist – Revised (PCL-R).....	21
2.2.4.3.2 Depression Proneness Rating Scale.....	22
2.2.4.3.3 Fear of Negative Evaluation Scale.....	22
2.2.4.3.4 Social Avoidance and Distress Scale.....	22
2.2.4.3.5 Social Skills Survey	23
2.2.4.3.6 Social Self-Esteem Inventory	23
2.2.4.3.7 Perceived Stress Scale	23
2.2.4.3.8 Locus of Control Behavior Scale.....	24
2.2.4.3.9 Rotter Internal-External Locus of Control Scale	24
2.2.4.3.10 Sexual Attitudes Survey	25
2.2.4.3.11 Sex Knowledge Inventory	25
2.2.4.3.12 Hostility Toward Women Scale.....	25

2.2.4.3.13 Buss-Durkee Hostility Inventory	25
2.2.4.3.14 Speilberger State-Trait Anger Inventory	26
2.2.4.3.15 Recidivism Variables	26
2.2.4.4 Procedure	27
2.2.4.5 Data Analytic Plan	27
2.2.5 Results	29
2.2.5.1 Comparisons of Pre- and Post-Treatment Scores	29
2.2.5.2 Associations Between Pre- and Post-Treatment Scores and PCL-R Scores	31
2.2.4.3 Associations Between Residual Treatment Change Scores and PCL-R Scores....	33
2.2.5.4 Predictive Validity of the Pre- and Post-Treatment Scores for Recidivism	34
2.2.5.5 Predictive Validity of the PCL-R Scores for Recidivism.....	35
2.2.5.6 Associations Between Treatment Change and Recidivism	36
2.2.5.7 Incremental Contributions of Change Scores to the Prediction of Recidivism.....	36
2.2.6 Discussion	36
2.2.6.1 Overall Pre-Posttreatment Change in Psychometric Scores.....	37
2.2.6.2 Associations Between Psychopathy and Self-Reported Treatment Needs.....	38
2.2.6.3 Associations Between Psychopathy and Self-Reported Treatment Change	40
2.2.6.4 Links Between Psychometric Treatment Change, Psychopathy, and Recidivism	42
2.2.6.5 Conclusions	43
2.2.6.6 Limitations and Future Directions	44
References	46
CHAPTER 3. MANUSCRIPT 2	62
3.1 Abstract	62
3.2 An Examination of Psychopathy and Criminal Attitude Change in Sexual Offending.....	63
3.2.1 The Relevance of Criminal Attitudes to Criminal Behaviour	63
3.2.2 Criminal Attitudes in Sexual Offending.....	65
3.2.3 Criminal Attitudes in Psychopathy	66
3.2.4 Psychopathy and Treatment	67
3.2.5 Current Study	68
3.2.6 Method	68
3.2.6.1 Sample	68
3.2.6.2 Treatment Program	69
3.2.6.3 Measures	69
3.2.6.3.1 Psychopathy Checklist – Revised (PCL-R).....	69
3.2.6.3.2 Criminal Sentiments Scale (CSS).....	70
3.2.6.3.3 Recidivism Variables.....	71
3.2.6.4 Procedure	71

3.2.6.5 Data Analytic Plan.....	72
3.2.7 Results	75
3.2.7.1 Comparisons of Pre- and Post-treatment Scores	75
3.2.7.2 Associations Between Pre- and Post-Treatment Scores and PCL-R Scores	75
3.2.7.3 Associations Between Residual Treatment Change Scores and PCL-R Scores....	76
3.2.7.4 Predictive Validity of Pre- and Post-Treatment Criminal Attitude Scores for Recidivism.....	77
3.2.7.5 Predictive Validity of PCL-R Scores for Recidivism.....	77
3.2.7.6 Predictive Associations Between Treatment Change and Recidivism.....	77
3.2.7.7 Comparisons of Criminal Attitudes Among Low and High Psychopathy Groups	78
3.2.7.8 Comparisons of Recidivism Rates Among Low x High Psychopathy and Low x High TLV/ICO Groups.....	79
3.2.7.9 Group Comparisons of Recidivism Trajectories	79
3.2.8 Discussion	81
3.2.8.1 Overall Pre-Posttreatment Change in Criminal Attitudes	81
3.2.8.2 Associations Between Psychopathy and Criminal Attitudes and Attitudinal Change.....	81
3.2.8.3 Links Between Criminal Attitudes, Psychopathy, and Recidivism.....	84
3.2.8.4 The Risk-Relevance of Modifications to Criminal Attitudes.....	85
3.2.8.5 Study Limitations	86
3.2.8.6 Conclusions and Future Directions.....	87
References.....	89
CHAPTER 4. DISCUSSION	105
4.1 Evidence of Positive Treatment Change with Psychopathy	105
4.2 Treatment Focus with Psychopathy	106
4.3 Strengths, Limitations, and Future Directions	108
References.....	112

List of Tables and Figures

Table 2.1 Pre- and Post-Treatment Comparisons on Self-Report Measures..... 52

Table 2.2 Associations (Pearson’s r) Between PCL-R and Pre- and Post-Treatment Self-Report Scores 53

Table 2.3 Associations (Pearson’s r) Between Residual PCL-R Scores and Self-Report Treatment Change Scores 55

Table 2.4 Predictive Accuracy of Pre-Treatment and Post-Treatment Self-Report Measures for Sexual, Violent, and General Recidivism 56

Table 2.5 Predictive Accuracy of the PCL-R for Sexual, Violent, and General Recidivism 59

Table 2.6 Cox Regression Survival Analyses: Associations Between Treatment Change Scores and Recidivism..... 60

Table 2.7 Cox Regression Survival Analyses: Associations Between Treatment Change Scores and Recidivism Controlling for PCL-R Score 61

Table 3.1 Pre- and Post-Treatment Comparisons on the CSS..... 94

Table 3.2 Associations (Pearson’s r) Between PCL-R and Pre- and Post-Treatment CSS Scores 95

Table 3.3 Associations (Pearson’s r) Between Residual PCL-R and Residual Treatment CSS Scores 96

Table 3.4 Predictive Accuracy of Pre-Treatment and Post-Treatment CSS Scores for Sexual, Violent, and General Recidivism 97

Table 3.5 Predictive Accuracy of the PCL-R for Sexual, Violent, and General Recidivism 98

Table 3.6 Cox Regression Survival Analyses: Associations Between Treatment Change Scores and Recidivism Controlling for PCL-R Scores 99

Table 3.7 Comparison of High and Low PCL-R Scoring Groups on CSS Scores 100

Table 3.8 Comparisons of Recidivism Rates According to High x Low TLV and PCL-R Scores Group Membership 101

Table 3.9 Comparisons of Recidivism Rates According to High x Low ICO and PCL-R Scores Group Membership 102

Figure 3.1. Survival Analysis: Cumulative Rates of Sexual, Violent, and General Recidivism Rates Among High x Low Psychopathy and High x Low TLV Groups. 103

Figure 3.2. Survival Analysis: Cumulative Rates of Sexual, Violent, and General Recidivism Rates Among High x Low Psychopathy and High x Low ICO Groups. 104

List of Appendices

Appendix A University of Saskatchewan Behavioural Research Ethics Board Certificate 114

Table of Abbreviations

Abbreviation	Explanation
RNR	Risk-Need-Responsivity
CBT	Cognitive Behavioural Therapy
PCL-R	Psychopathy Checklist – Revised
VRAG-R	Violence Risk Appraisal Guide – Revised
DVRAG-R	Domestic Violence Risk Appraisal Guide – Revised
SORAG	Sexual Offender Risk Appraisal Guide
SRA	Structured Risk Assessment
VRS-SO	Violence Risk Scale – Sexual Offending version
RPC	Regional Psychiatric Centre
LOC	Locus of Control
BD	Buss-Durkee
CPIC	Canadian Police Information Centre
ICCs	Intraclass Correlation Coefficients
AUC	Area Under the Curve
ROC	Receiver Operating Characteristic Curve
CSS	Criminal Sentiments Scale
CSS-M	Criminal Sentiments Scale - Modified
CAP	Criminal Attitudes Program
LSI-R	Level of Service Inventory – Revised
PID	Pride in Delinquency Scale
LCP	Law, Court, Police
TLV	Tolerance Toward Law Violations
ICO	Identification of Criminal Others

Note. All abbreviations listed also have explanations included in text as they appear.

CHAPTER 1.

INTRODUCTION

1.1 The Impact of Sexual Violence

Sexual violence remains a prevalent societal issue. Each year, over 20,000 incidents of sexual assault are reported to Canadian police (Statistics Canada, 2017), a number that likely significantly underestimates the true scope of the problem. In fact, a 2014 survey found that only a very small portion (i.e., 5%) of sexual offenses were reported to police that year (Conroy & Cotter, 2017). Estimates derived from the survey indicated that the number of sexual assault incidents in 2014 was closer to 630,000. Lifetime prevalence data from the United States suggests that as many as 43.6% of women and 24.8% of men will experience some form of contact sexual violence in their lifetime (Smith et al. 2018). While both men and women can be perpetrators and victims of sexual violence, sexual violence is most often perpetrated by men towards female victims. Canadian survey data revealed that the majority of self-reported sexual assaults are perpetrated by men (94%) against women (87%; Conroy & Cotter, 2017).

Sexual violence has devastating consequences for victims. Research has demonstrated an association between sexual violence and a number of physical, psychological, and social consequences including long-term complications from genital injury (e.g., pelvic pain), sexually transmitted infections, post-traumatic stress disorder, suicidal behaviour, and social stigma (Jina & Thomas, 2013). The psychological impact is particularly pronounced. Canadian data suggests that as many as one in six sexual assault victims experience symptoms consistent with post-traumatic stress disorder, including avoidance, increased startle response, re-experiencing, and feeling numb and detached from their surroundings (Conroy & Cotter, 2017). Additionally, one in four victims experience difficulty carrying out their everyday activities following an incident of sexual violence. In addition to victim impact, there is also an economic cost of sexual violence. In a given year, the Canadian government estimated the cost of sexual violence to be \$4.8 billion, exceeding all other crimes examined including assault (\$2.1 billion), criminal harassment (\$0.5 billion), homicide (\$3.7 billion), and robbery (\$1.6 billion) (Hoddenbagh, Zhang, & McDonald, 2014). From both a victim impact and economic perspective, addressing sexual violence is imperative.

1.2 Risk-Need-Responsivity

Reducing sexual violence and its sequelae can be achieved through the appropriate assessment, treatment, and management of individuals at risk for perpetrating this type of violence; what has become the fundamental premise of the Risk-Need-Responsivity (RNR) model (Bonta & Andrews, 2007). The RNR model outlines three principles that are required for effective rehabilitation of correctional populations. The Risk principle asserts that the level of intervention should be proportionate to an offender's level of risk. Current risk assessment practices rely on validated risk assessment measures containing factors that are empirically and/or theoretically linked to offending behaviour. A typical assessment considers the presence and absence of static (i.e., unchangeable) risk factors (e.g., criminal history) and dynamic (i.e., changeable) risk factors (e.g., substance use, criminal attitudes), as well as the individual's strengths and protective factors. The resulting risk estimate is intended to guide decisions about offender treatment and management, including the dosage of services that are received, and what should be targeted with services. The Risk principle speaks to the dosage of treatment, with the highest intensity of intervention being reserved for the highest risk offenders. The importance of this has been demonstrated in research where a mismatch between level of risk and level of intervention has resulted in recidivism rates double that of appropriately matched offenders (Bonta, Wallace-Capretta, & Rooney, 2000).

The Need principle describes what should be of focus in treatment. It states that treatment should target dynamic factors that are empirically associated with risk (i.e., criminogenic needs). Seven criminogenic needs have been identified as meaningful targets for treatment: antisocial associates, antisocial cognitions, antisocial personality pattern, substance abuse, family-marital circumstances, school-work circumstances, and leisure-recreation circumstances (Andrews, Bonta, & Wormith, 2011). These, along with a history of antisocial behavior (a static risk factor), comprise the Central Eight risk/need factors that are predictive of general future offending. Research has also identified criminogenic needs specific to predicting reoffence among those who have sexually offended. Notable factors revealed in the literature include intimacy deficits, problems with self-regulation (generally and sexually), deviant sexual preferences, attitudes that support sexual assault, a lack of prosocial influences, and problems with cooperation and supervision (Hanson, Harris, Scott, & Helmus, 2007). A deviant sexual preference is particularly relevant from a risk perspective, as it is one of the two strongest predictors of recidivism among

this population (Hanson & Morton-Bourgon, 2004; Hanson & Morton-Bourgon, 2005). The other strongly predictive factor is antisocial orientation / lifestyle. It is worth noting that those who have sexually offended are more likely to reoffend with non-sexual offences and the criminogenic needs specific to the population predict recidivism outcomes differently (Hanson & Bussière, 1998; Hanson & Morton-Bourgon, 2005). Notably, while sexual deviance is of high relevance to the prediction of sexual reoffence, this factor has not demonstrated a reliable relationship with violent non-sexual offending (Hanson & Morton-Bourgon, 2005). Thus, reducing the risk of multiple forms of recidivism requires consideration of and attention to both general and sexual offending specific criminogenic needs in assessment treatment.

Lastly, the Responsivity principle specifies how treatment should be delivered. There are two components to this principle. The first is general and speaks to the type of intervention. It states that interventions should be based on cognitive social learning (Bonta & Andrews, 2007; Andrews et al., 2011) and more specifically, follow a cognitive-behavioural orientation (Yates, 2013). Cognitive behavioural therapy (CBT) approach fits nicely within a RNR framework, as it is designed to identify and correct criminogenic thinking patterns and foster prosocial behaviors (Lipsey, Chapman, & Landenberger, 2001). Several lines of research have demonstrated that CBT-based programs are effective at reducing the likelihood of recidivism among both adult and juvenile offenders (Landenberg & Lipsey, 2005; Lipsey et al., 2001; Pearson, Lipton, Cleland, & Yee, 2002). Meta-analytic research has found CBT to be the most effective treatment approach for reducing recidivism among individuals who have sexually offended (Lösel & Schmucker, 2005). In practice, CBT approaches address sexual offending through various cognitive and behavioural strategies targeted at criminogenic needs. Treatment areas often include skill building in the areas of problem solving, interpersonal skills, and self-regulation, as well as challenging offence-supportive and distorted cognitions and managing deviant sexual arousal (Yates, 2013). The second component of responsivity is specific and speaks to individual characteristics. It states that treatment should be delivered in a way that minimizes any potential treatment-interfering characteristics and maximizes individual learning (Bonta & Andrews, 2007; Andrews et al., 2011). In other words, treatment should be responsive to any individual's personality characteristics including culture, learning style, language, cognitive ability, personal circumstances, motivation, and mental status (Andrews et al., 2011).

The RNR model is immensely popular worldwide, owing largely to the degree of empirical evidence demonstrating that adherence to these principles significantly decreases reoffending behavior among undifferentiated (Bonta et al., 2000; Bonta & Andrews, 2007) and specific offender groups (e.g., intimate partner violence offenders, Belfrage et al., 2012; sexual offenders, Hanson, Bourgon, Helmus, & Hodgson, 2009). Meta-analytic research has demonstrated that adherence to RNR principles in sexual offending treatment results in greater reduction of recidivism rates (Hanson et al., 2009). Specifically, Hanson et al. (2009) found that the more principles a treatment program adhered to, the more effective it was. Effectiveness was measured as a function of recidivism following treatment. Thus, the more principles that were adhered to in treatment, the fewer the incidents of reoffence. According to research by Bonta and Andrews (2007), adherence to all three principles translates into average recidivism differences of 17% between treated and non-treated offenders in custody and 35% between treated and non-treated offenders in the community. These reductions in recidivism observed with RNR-based treatment translate into a success rate that is comparable to, and in some cases, exceeds that of common medical interventions (e.g., chemotherapy for breast cancer).

1.3 Psychopathy

An important consideration for treatment involving correctional populations is the presence of psychopathic traits. Psychopathy is a serious personality disorder characterized by a constellation of affective (e.g., callous, lack of empathy) and interpersonal (e.g., grandiose, manipulative) traits. Behaviourally, individuals with psychopathy tend to be irresponsible, impulsive and take advantage of those around them. The nature of the disorder lends itself to a lifestyle of criminal activity. Antisocial behaviour starts at a young age as problematic behaviour (e.g., stealing, lying, bullying) and persists and progresses into a pattern of diverse criminal behaviour into adolescence and adulthood. As a result, while psychopathy is seen in only roughly 1% of the general population, prevalence rates are closer to 15% to 25% in incarcerated populations (Hare, 1996; Wong, 1984). Within sexual offending populations, there is variability in prevalence rates between those who offend against adults versus children, with rates of psychopathy of approximately 5% - 10% among those with child victims and approximately 33% among those with adult and mixed victims (Olver & Wong, 2006; Olver, 2016; Porter et al., 2000). Additionally, higher rates have been observed among sexual offenders in high intensity

treatment programs, with base rates of psychopathy exceeding 50% (Lewis, Olver, & Wong, 2012).

The current and most widely accepted method of assessing and conceptualizing psychopathy is Hare's Psychopathy Checklist – Revised (PCL-R; Hare, 1991, 2003). The PCL-R is a 20-item checklist assessing the core features of psychopathy. Each item is rated on a 0 (absent), 1 (partially present), and 2 (present) scale resulting in a range of possible scores from 0 to 40. The total score indicates the extent to which a given individual resembles someone with psychopathy and 30 is the typical clinical cut-off used to classify someone as having psychopathy. In addition to the total score, the PCL-R items can be divided further into two factors and four facets. Factor 1 represents the interpersonal component of psychopathy and is further broken down into interpersonal (e.g., superficial charm, manipulative, grandiose) and affective (e.g., shallow affect, unemotional, callousness) facets. Factor 2 represents that antisocial lifestyle pattern of psychopathy contains the antisocial (e.g., criminal versatility, juvenile delinquency) and lifestyle (e.g., parasitic, impulsive, irresponsible) facets.

1.4 Therapeutic Response of Psychopathy

Psychopathy is an important consideration from a RNR perspective. Research has demonstrated that individuals with psychopathy are higher risk and present with a greater number of areas of criminogenic need (e.g., problems in the areas of school and work, family and marital relationships, and leisure and recreation, greater criminal histories and endorsement of criminal attitudes, greater affiliation with antisocial peers, and elevated substance use), compared to those without psychopathy (Simourd & Hoge, 2000). As a result, although the PCL-R was not developed for the purposes of predicting offending behaviour, several lines of research have demonstrated that PCL-R scores are predictive of various forms of recidivism (Hanson & Morton-Bourgon, 2005; Hawes, Boccaccini, & Murrie, 2013; Leistico, Salekin, DeCoster, & Rogers, 2008; Salekin, Rogers, & Sewell, 1996), as well as institutional misconduct (Guy, Edens, Anthony, & Douglas, 2005). The findings from meta-analytic research have furthered our understanding of the predictive efficacy of the PCL-R (Hawes et al., 2013; Leistico et al., 2008; Yang, Wong, & Coid, 2010). Specifically, that factor 2 is more strongly predictive of antisocial and offending behaviour than factor 1. A testament to the construct's predictive validity, as measured by the PCL-R, is its inclusion in a family of current and widely supported risk assessment tools: the Violence Risk Appraisal Guide – Revised (VRAG-R; Rice, Harris, & Lang,

2013) for the prediction of violent recidivism, the Domestic Violence Risk Appraisal Guide – Revised (DVRAG-R; Hilton, Harris, Rice, Houghton, & Eke, 2008) for the prediction of intimate partner violence recidivism and the Sexual Offender Risk Appraisal Guide (SORAG; Quinsey, Harris, Rice, & Cormier, 2006) for the prediction of sexual violence recidivism. Each of these tools consider an individual’s PCL-R score, and in particular, their factor 2 score, as relevant to the prediction of future offending behaviour. In addition to being a group of higher risk and greater need, research has also demonstrated that psychopathy poses a number of challenges for therapy. Notably, research has demonstrated that those with psychopathy are more likely to drop out or not complete treatment (Ogloff, Wong, & Greenwood, 1990; Olver, Stockdale, & Wormith, 2011; Sewall & Olver, 2019), make fewer therapeutic gains (Ogloff et al., 1990; Olver, Lewis, & Wong, 2013), form weaker therapeutic alliances (DeSorcy, Olver, & Wormith, 2020), and exhibit poor motivation for treatment (Ogloff et al., 1990). Each of these serve as barriers to affect treatment and limit the extent to which meaningful gains can be made. To this end, the psychopathy also has relevance as a responsivity factor.

Given the challenging nature of this population, there has been significant scientific interest in the question of whether those with psychopathy can benefit from treatment. Early literature on the treatment of individuals with psychopathy painted a bleak and pessimistic picture (Cleckely, 1941; Harris & Rice, 2006; Suedfeld & Landon, 1978). In fact, it is only within the last couple of decades that it was suggested that treatment of those with psychopathy is, at best, not effective and, at worst, increases the likelihood of reoffence for those with psychopathy (Harris & Rice, 2006). A review by Salekin (2002), on the other hand, concluded that the existing research does not support the notion that psychopathy is untreatable. This was on the basis that approximately 60% of reviewed studies documented some sort of improvement. However, the review also revealed significant variability among studies in the types of interventions, research designs, treatment groups, and definitions of treatment success used. Only a small number of the studies (5 out of 42) utilized CBT approaches and the interventions used would be considered antiquated and not in-line with the current practices outlined in an RNR approach. Most studies did not use the PCL-R or any other validated measure to identify individuals with psychopathy. Treatment success was not standardized, with some studies including relevant variables such as reductions in subsequent criminal behaviour and institutional misconduct and others defining success as an increase in empathy and anxiety, as well as

increased capacity for guilt. The latter variables would not be considered risk-relevant from an RNR perspective.

The heterogeneity among the studies reviewed in Salekin (2002) makes it difficult to draw any definitive conclusions about the therapeutic response of those with psychopathy. However, an updated review by Salekin, Worley, and Grimes (2010) has provided promising evidence of positive treatment outcomes with programs that utilize evidence-based CBT approaches. Similarly, an examination of programs grounded in RNR principles has demonstrated encouraging evidence of lowered posttreatment risk scores (Looman, Abracen, Serin, & Marquis, 2005; Olver & Wong, 2009), reductions in rates and seriousness of sexual and violent recidivism (Olver & Wong, 2009; Wong, Gordon, Gu, Lewis, & Olver, 2012), and increased latency in reoffending behaviour (e.g., reoffended less quickly than those who scored similarly on the PCL-R but made less treatment progress; Langton, Barbaree, Harkins, & Peacock, 2006) among individual high in psychopathic traits.

In light of the growing evidence of a positive therapeutic response with psychopathy, a two-component model has been offered as a framework for providing treatment to this difficult population from a RNR perspective (Wong, 2015; Wong et al., 2012). Under this model, the primary aim of treatment is the reducing the risk for violence or sexual violence. It considers factor 2, or the antisocial and lifestyle features of psychopathy to be the primary target of treatment. Thus, rather than trying to change the interpersonal and affective aspects of an individual, which tend to be more rigid and less directly linked to violent behaviour, the focus is on the aspects of the personality disorder that are linked to offending behaviour. The first component of the treatment model, termed the interpersonal component, speaks to the interpersonal and affective traits and considers them to be a responsivity issue. In the context of treatment, these traits are likely to manifest as reduced motivation, weak therapeutic alliance, and treatment-interfering behaviours. The interpersonal component addresses the need to engage and motivate individuals, build a working alliance, manage and contain treatment-interfering behaviours, and maintain boundaries in order for treatment to be successful. The second component, termed the criminogenic component, speaks to what should be targeted in an intervention. It considers the antisocial and lifestyle aspects of psychopathy to be criminogenic in nature and recommends that treatment target the needs that correspond with these aspects of the personality disorder (e.g., parasitic lifestyle, lack of realistic goals, irresponsibility). The model

serves as a promising, evidence-informed direction as the literature continues to advance its understanding of the therapeutic response of psychopathy.

1.5 Manuscripts

Although the literature has come a long way from its initial bleak and pessimistic conclusion, it is clear that much remains unknown about the treatment of psychopathy and further investigation is warranted. The current dissertation extends the existing literature by examining the association between psychopathy and treatment change, assessed via self-report, and exploring whether these changes are associated with recidivism. Two manuscripts are presented in this dissertation. They each explore the extent to which individuals with prominent psychopathic traits exhibit changes on various self-report measures, administered in real time during a high intensity treatment program. The manuscripts are novel in that they examine whether these changes are risk-relevant (i.e., predict recidivism) after controlling for psychopathy. The first manuscript explores the intersection of psychopathy, treatment change, and recidivism using a battery of routinely administered psychometric measures designed to assess various areas of dynamic need for sexual offending. The second manuscript focuses on self-reported change in general criminal attitudes.

References

- Andrews, D. A., Bonta, J., & Wormith, J. S. (2011). The risk-need-responsivity (RNR) model: Does adding the good lives model contribute to effective crime prevention? *Criminal Justice and Behavior, 38*, 735–755.
- Belfrage, H., Strand, S., Storey, J. E., Gibas, A. L., Kropp, P. R., & Hart, S. D. (2012). Assessment and management of risk for intimate partner violence by police officers using the Spousal Assault Risk Assessment Guide. *Law and Human Behavior, 36*, 60–67.
- Bonta, J., & Andrews, D. A. (2007). *Risk-need-responsivity model for offender assessment and rehabilitation* (User Report No. 2007-06). Ottawa, Canada: Public Safety Canada
- Bonta, J., Wallace-Capretta, S., & Rooney, J. (2000). A quasi-experimental evaluation of an intensive rehabilitation supervision program. *Criminal Justice and Behavior, 27*, 312–329.
- Cleckely, H. (1941). *The mask of sanity: An attempt to clarify some issue about the so-called psychopathic personality*. St. Louis, MO: Mosby.
- Conroy, S., & Cotter, A. (2017). Self-reported sexual assault in Canada, 2014. *Juristat*. Retrieved from <http://www.statcan.gc.ca/pub/85-002-x/2017001/article/14842-eng.htm>
- DeSorcy, D. R., Olver, M. E., & Wormith, J. S. (2020). Working alliance and psychopathy: Linkages to treatment outcome in a sample of treated sexual offenders. *Journal of Interpersonal Violence, 35*, 1739–1760.
- Guy, L. S., Edens, J. F., Anthony, C., & Douglas, K. S. (2005). Does psychopathy predict institutional misconduct among adults? A meta-analytic investigation. *Journal of Consulting and Clinical Psychology, 73*, 1056–1064.
- Hanson, R. K., Bourgon, G., Helmus, L., & Hodgson, S. (2009). The principles of effective correctional treatment also apply to sexual offenders: A meta-analysis. *Criminal Justice and Behavior, 36*, 865–891.
- Hanson, R. K., & Bussière, M. (1998). Predicting relapse: A meta-analysis of sexual offender recidivism studies. *Journal of Consulting and Clinical Psychology, 66*, 348–362.
- Hanson, R. K., Harris, A. J. R., Scott, T., & Helmus, L. (2007). *Assessing the risk of sexual offenders on community supervision: The dynamic supervision project* (User Report No. 2007-05). Ottawa, Canada: Public Safety Canada.

- Hanson, R. K., & Morton-Bourgon, K. E. (2004). *Predictors of sexual recidivism: An updated meta-analysis*. Ottawa, Canada: Public Safety and Emergency Preparedness Canada.
- Hanson, R. K. & Morton-Bourgon, K. E. (2005). The characteristics of persistent sexual offenders: A meta-analysis of recidivism studies. *Journal of Consulting and Clinical Psychology, 73*, 1154–1163.
- Hare, R. D. (1991). *The Hare Psychopathy Checklist–Revised*. Toronto, ON: Multi-Health Systems.
- Hare, R. D. (1996). Psychopathy, a clinical construct whose time has come. *Criminal Justice and Behavior, 23*, 25–54.
- Hare, R. D. (2003). *Manual for the Revised Psychopathy Checklist* (2nd ed.). Toronto, ON: Multi-Health Systems.
- Harris, G., & Rice, M. (2006). Treatment of psychopathy: A review of empirical findings. In C. Patrick (Ed.), *Handbook of psychopathy* (pp. 555–572). New York, NY: Guilford.
- Hawes, S. W., Boccaccini, M. T., & Murrie, D. C. (2013). Psychopathy and the combination of psychopathy and sexual deviance as predictors of sexual recidivism: Meta-analytic findings using the Psychopathy Checklist—Revised. *Psychological Assessment, 25*, 233–243.
- Hilton, N. Z., Harris, G. T., Rice, M. E., Houghton, R. E., & Eke, A. W. (2008). An indepth actuarial assessment for wife assault recidivism: The Domestic Violence Risk Appraisal Guide. *Law and Human Behavior, 32*, 150–163.
- Hoddenbagh, J., McDonald, S. E., & Zhang, T. (2014). *An estimation of the economic impact of violent victimization in Canada, 2009*. Retrieved from https://www.justice.gc.ca/eng/rp-pr/cj-jp/victim/rr14_01/rr14_01.pdf
- Jina, R., & Thomas, L. S. (2013). Health consequences of sexual violence against women. *Best Practice & Research Clinical Obstetrics & Gynaecology, 27*, 15–26.
- Landenberger, N. A., & Lipsey, M. W. (2005). The positive effects of cognitive behavioral programs for offenders: A meta-analysis of factors associated with effective treatment. *Journal of Experimental Criminology, 1*, 451–476.
- Langton, C. M., Barbaree, H. E., Harkins, L., & Peacock, E. J. (2006). Sex offenders’ response to treatment and its association with recidivism as a function of psychopathy. *Sexual Abuse: Journal of Research and Treatment, 18*, 99–120.

- Leistico, A. M. R., Salekin, R. T., DeCoster, J., & Rogers, R. (2008). A large-scale meta-analysis relating the Hare measures of psychopathy to antisocial conduct. *Law and Human Behavior, 32*, 28–45.
- Lewis, K., Olver, M. E., & Wong, S. C. (2012). The Violence Risk Scale: Predictive validity and linking treatment changes with recidivism in a sample of high-risk offenders with psychopathic traits. *Assessment, 20*, 150–164.
- Lipsey, M. W., Chapman, G. L., & Kider, S. B. (2001). Cognitive-behavioral programs for offenders. *The Annals of the American Academy of Political and Social Science, 578*, 144–157.
- Looman, J., Abracen, J., Serin, R., & Marquis, P. (2005). Psychopathy, treatment change, and recidivism in high-risk, high-need sexual offenders. *Journal of Interpersonal Violence, 20*, 549–568.
- Lösel, F., & Schmucker, M. (2005). The effectiveness of treatment for sexual offenders: A comprehensive meta-analysis. *Journal of Experimental Criminology, 1*, 117–146.
- Ogloff, J. D., Wong, S. C., & Greenwood, A. (1990). Treating criminal psychopaths in a therapeutic community program. *Behavioral Sciences and the Law, 8*, 181–190.
- Olver, M. E. (2016). Treatment of psychopathic offenders: Evidence, issues, and controversies. *Journal of Community Safety and Well-Being, 1*, 75–82.
- Olver, M. E., Lewis, K., & Wong, S. C. (2013). Risk reduction treatment of high-risk psychopathic offenders: The relationship of psychopathy and treatment change to violent recidivism. *Personality Disorders: Theory, Research, and Treatment, 4*, 160–167.
- Olver, M. E., Stockdale, K. C., & Wormith, J. S. (2011). A meta-analysis of predictors of offender treatment attrition and its relationship to recidivism. *Journal of Consulting and Clinical Psychology, 79*, 6–21.
- Olver, M. E., & Wong, S. C. (2006). Psychopathy, sexual deviance, and recidivism among sex offenders. *Sexual Abuse: A Journal of Research and Treatment, 18*, 65–82.
- Olver, M. E., & Wong, S. C. (2009). Therapeutic responses of psychopathic sexual offenders: Treatment attrition, therapeutic change, and long-term recidivism. *Journal of Consulting and Clinical Psychology, 77*, 328–336.

- Pearson, F. S., Lipton, D. S., Cleland, C. M., & Yee, D. S. (2002). The effects of behavioral/cognitive-behavioral programs on recidivism. *Crime & Delinquency*, 48, 476–496.
- Porter, S., Fairweather, D., Drugge, J., Hervé, H., Birt, A., & Boer, D. P. (2000). Profiles of psychopathy in incarcerated sexual offenders. *Criminal Justice and Behavior*, 27, 216–233.
- Quinsey, V. L., Harris, G. T., Rice, M. E., & Cormier, C. A. (2006). *Violent offenders* (2nd ed.). Washington, DC: American Psychological Association.
- Rice, M. E., Harris, G. T., & Lang, C. (2013). Validation of and revision to the VRAG and SORAG: The Violence Risk Appraisal Guide—Revised (VRAG-R). *Psychological Assessment*, 25, 951–965.
- Salekin, R. T. (2002). Psychopathy and therapeutic pessimism: Clinical lore or clinical reality? *Clinical Psychology Review*, 22, 79–112.
- Salekin, R. T., Rogers, R., & Sewell, K. W. (1996). A review and meta-analysis of the Psychopathy Checklist and Psychopathy Checklist—Revised: Predictive validity of dangerousness. *Clinical Psychology: Science and Practice*, 3, 203–215.
- Salekin, R., Worley, C. & Grimes, R. (2010). Treatment of psychopathy: A review and brief introduction to the mental model approach for psychopathy. *Behavioral Sciences and the Law*, 28, 235–266.
- Simourd, D. J., & Hoge, R. (2000). Criminal psychopathy: A risk-need perspective. *Criminal Justice and Behavior*, 27, 256–272.
- Smith, S. G., Zhang, X., Basile, K. C., Merrick, M.T., Wang, J., Kresnow, M., Chen, J. (2018). *The national intimate partner and sexual violence survey (NISVS): 2015 data brief – updated release*. Retrieved from <https://www.cdc.gov/violenceprevention/pdf/2015data-brief508.pdf>
- Statistics Canada. (2017). Sexual assault. *Just Facts*. Retrieved from <https://www.justice.gc.ca/eng/rp-pr/jr/jf-pf/2017/docs/may02.pdf>
- Suedfeld, P., & Landon, P. B. (1978). Approaches to treatment. In R.D. Hare & D. Schalling (Eds.), *Psychopathic behavior: Approaches to research* (pp. 347–376). Chichester: John Sright and Sons Ltd.

- Wong, S. C. (1984). *The criminal and institutional behaviors of psychopaths* (User Report No. 1984-87). Ottawa, ON: Ministry of the Solicitor General of Canada.
- Wong, S. C. (2015). Treatment of violence prone individuals with psychopathic personality traits. In J. Livesley, G. Dimaggio, & J. Clarkin (Eds.), *Integrated treatment of personality disorder: A modular approach* (pp. 345–376). New York, NY: Guilford Press.
- Wong, S. C., Gordon, A., Gu, D., Lewis, K., & Olver, M. E. (2012). The effectiveness of violence reduction treatment for psychopathic offenders: Empirical evidence and a treatment model. *International Journal of Forensic Mental Health, 11*, 336–349.
- Yang, M., Wong, S. C., & Coid, J. (2010). The efficacy of violence prediction: A meta-analytic comparison of nine risk assessment tools. *Psychological Bulletin, 136*, 740–767.
- Yates, P. M. (2013). Treatment of sexual offenders: Research, best practices, and emerging models. *International Journal of Behavioral Consultation and Therapy, 8*, 89–95.

CHAPTER 2.
MANUSCRIPT 1

2.1 Abstract

The present investigation examined the relationships between psychopathy, self-reported treatment change, and recidivism in a sample of federally incarcerated men who underwent high intensity treatment programming for sexual offending. Treatment change was assessed in real time using a battery of self-report instruments designed to measure various psychological and risk-relevant constructs relevant to sexual offending (e.g., socioemotional functioning, offence-supportive attitudes, anger and hostility). A pattern of conceptually meaningful associations emerged between scale scores and psychopathy facets, with scales reflective of cognitive and behavioural aspects of anger and hostility demonstrating the most consistent relationships with psychopathy. Treatment change was differentially associated with the various psychopathy facets. Notably, antisocial and interpersonal scores were linked to positive treatment change while affective and lifestyle scores were generally associated with reduced treatment change. Changes in self-reported hostility and aggression were associated with reduced post-treatment recidivism rates, however, only scores related to endorsement of physical violence emerged as uniquely predictive after controlling for psychopathy. Study findings are suggestive of positive therapeutic response among individuals with psychopathic traits and are supportive of a multifaceted approach to treatment with this population.

2.2 A Psychometric Examination of Psychopathy and Sexual Offending Treatment Change

The treatment response of individuals with psychopathy has been a topic of considerable controversy, debate, and pessimism (Salekin, 2002; Salekin, Worley, & Grimes, 2010). Several lines of research have demonstrated the relevance of psychopathy within the Risk-Need-Responsivity (RNR; Bonta & Andrews, 2007) model of offender rehabilitation and treatment. Notably, psychopathy is associated with increased rates of recidivism (Hanson & Morton-Bourgon, 2005; Hawes, Boccaccini, & Murrie, 2013; Leistico, Salekin, DeCoster, & Rogers, 2008; Salekin, Rogers, & Sewell, 1996), greater criminogenic need (Simourd & Hoge, 2000), and various treatment-interfering characteristics (e.g., treatment drop-out and non-completion, poor motivation, and weaker therapeutic alliances; DeSorcy, Olver, & Wormith, 2020; Ogloff, Wong, & Greenwood, 1990; Olver, Stockdale, & Wormith, 2011; Sewall & Olver, 2019). Early investigations of the therapeutic response of psychopathy concluded that treatment of psychopathy is ineffective and worse, has the potential to increase the likelihood of future offending behaviour (Harris & Rice, 2006; Suedfeld & Landon, 1978). Other researchers have argued that these conclusions are unfounded and rather, reflect heterogeneity among studies and a mismatch between treatment program and evidence-based recommendations (e.g., Salekin, 2002; Wong, 2015). For instance, in one review, it was noted that many of the studies did not make use of an evidence-based assessment tool for psychopathy (i.e., the Hare Psychopathy Checklist – Revised, PCL-R; Hare, 1991, 2003) and few of the early studies implemented a CBT approach to treatment (Salekin, 2002), both of which are recommended under a RNR approach (Bonta & Andrews, 2007).

Additional research focused on CBT-based treatment programs grounded in RNR principles has provided promising evidence of the treatability of psychopathy (Olver, 2016), including evidence of lowered posttreatment risk scores (Looman, Abracen, Serin, & Marquis, 2005; Olver & Wong, 2009), reductions in rates and seriousness of sexual and violent recidivism (Olver & Wong, 2009; Wong, Gordon, Gu, Lewis, & Olver, 2012), and increased latency in reoffending behaviour (e.g., reoffended less quickly than those who scored similarly on the PCL-R but made less treatment progress; Langton, Barbaree, Harkins, & Peacock, 2006) among individual high in psychopathic traits. In more recent years, Wong (Wong et al., 2012, Wong, 2015) provided a conceptual two-component treatment framework for the treatment of psychopathy that takes into consideration the current evidence. This model speaks to which

components of the personality disorder should be targeted in treatment (i.e., antisocial and lifestyle), while acknowledging that other aspects of the disorder (i.e., interpersonal and affective) need to be managed as responsivity considerations in order for treatment to be successful. The model serves as a promising, evidence-informed direction as the literature continues to advance its understanding of the therapeutic response of psychopathy.

2.2.1 Measuring Treatment Change

Studying the effectiveness of treatment requires evidence that change has occurred. To test this, research makes use of outcome variables that are, in theory, relevant to the purpose and goals of the intervention. Given that the intention of correctional programming is to reduce future reoffending behaviour, recidivism outcomes are the goal standard and most commonly used indicators of therapeutic response (Collaborative Outcome Data Committee, 2007). However, researchers are often interested in specific changes that account for the observed recidivism rates. It has been argued that treatment change studies should not focus solely on recidivism and should also be examining change in relevant clinical and psychological factors that may potentially influence offending behaviours (Jung & Gulayets, 2011). The psychopathy treatment literature has been criticized for its history of inclusion of various irrelevant treatment targets and outcome variables, including increased capacity of anxiety and guilt, improved empathy, and insight (Olver, 2016; Salekin, 2002). In more recent years, there has been an increase in studies focused on recidivism as the measure of treatment outcome (Salekin et al., 2010). Salekin et al. (2010) argued that while this an improvement, a sole focus on recidivistic behaviour as a treatment outcome may be incomplete. Fortunately, there have been significant advancements in the correctional treatment literature on the treatment targets that are risk-relevant and have the potential to change through intervention. Arguably, a promising place to start is with the dynamic risk factors that have been identified as treatment targets for the population receiving intervention.

2.2.2 Sexual Offending Treatment Change

The present study examines the therapeutic response of psychopathy using a sexual offending sample. In recent years, the sexual offending literature has called for increased attention to the dynamic factors associated with sexual offence behaviours. Early efforts in understanding risk of sexual violence focused on the static (i.e., historical) factors that emerged through research as robust predictors of offending behaviour (e.g., prior offending behaviour, a

history of living with an intimate partner; Hanson & Thornton, 1999, 2000). However, it has been acknowledged that these factors are limited in utility because, by nature, they are unchangeable (Hanson, 2000). A fundamental premise of the RNR model (Bonta & Andrews, 2007) is that recidivism is reduced by targeting dynamic (i.e., changeable) factors associated with offending behaviour. Several lines of research have sought to identify the dynamic factors associated with sexual offending (e.g., Allan, Randolph, Rutherford, & Hudson, 2007; Beech, 1998; Hanson & Harris, 2001; Hanson, Harris, Scott, & Helmus, 2007; Hanson & Morton-Bourgon, 2005; Olver, Wong, Nicholaichuk, & Gordon, 2007; Olver, Nicholaichuk, & Wong, 2014; Thornton, 2002). Using various approaches, multiple studies have identified factors related to social and emotional functioning, offence-supportive attitudes, anger and hostility, and sexual interests as potentially changeable factors related to sexual offending (Beech, 1998; Allan et al., 2007; Thornton, 2002; Olver et al., 2014).

Self-report measures have had a central role in both the identification and assessment of dynamic factors. Notably, several studies have either employed factor analytic statistical techniques to identify common factors underpinning the responses provided on various self-report measures (e.g., Allan et al., 2007; Olver et al., 2014) or utilized self-report measures to assess domains that had been previously identified from a review of the literature (e.g., Craig, Thornton, Beech, & Browne, 2007; Thornton, 2002). Thornton (2002) developed his framework of dynamic risk assessment, termed the Structured Risk Assessment (SRA), based on available literature. The framework measures static risk, as well four dynamic risk domains gleaned from the literature: Sexual Interests, Distorted Attitudes, Self-Regulation, and Socioaffective Functioning (now referred to the Relational Style domain; Thornton & Knight, 2015). Three of the dynamic domains (i.e., all except Sexual Interests) are assessed using psychometric self-report measures that conceptually map onto these areas. Thornton's (2002) research revealed that increased "deviance" (defined as having dysfunction in multiple domains) was associated with sexual recidivism and having more than one sexual offence conviction. In subsequent research, Craig et al. (2007) validated the framework, providing evidence of relationships between each of the domains and sexual recidivism. Both sets of studies found that, when combined, the domains independently predicted recidivism over and above an individual's static risk (Thornton, 2002; Craig et al., 2007) as measured by the Static-99/Static-99R (Hanson & Thornton, 1999, 2000), a validated sexual offending risk assessment measure. On their own, Sexual Interests was the only

factor that incrementally predicted sexual recidivism above static risk (Craig et al., 2007), which is consistent with meta-analytic research demonstrating this, along with antisocial orientation, is the strongest predictor of sexual recidivism (Hanson & Morton-Bourgon, 2005). Craig et al. (2007) also argued that since psychometric measures were used to assess the domains, that their research provided further evidence that self-report measures can be reliable indicators of dynamic risk factors in correctional settings.

Factor analyses of psychometric batteries have also revealed similar dynamic domains to that of Thornton's SRA (Allan et al., 2007; Olver et al., 2014). Allan et al., (2007) found that individual differences on their battery of psychometric measures could be described with four underlying dimensions: Social Inadequacy, Sexual Interests, Anger / Hostility, and Pro-Offending Attitudes. Similarly, a factor analysis revealed the following three domains in the research of Olver et al. (2014): Socioemotional Functioning, Anger / Hostility, and Misogynist Attitudes. The latter study did not include any measures of sexual interest. As with previous research, both authors found that, when combined, the psychometrically assessed factors predicted recidivism incrementally to static risk (Allan et al., 2007; Olver et al., 2014). Consistent with previous research, Allan et al. (2007) found the Sexual Interests domain to be incremental to static risk. They also found evidence of incremental predictive validity of Pro-Offending Attitudes, which the authors purported was consistent with previous analytic work (e.g., Hanson & Morton-Bourgon, 2005) in that this domain is conceptually related to an antisocial orientation. In further support of the validity of the psychometric assessment of dynamic need domains, Olver et al. (2014) demonstrated evidence of convergence between their domains and the dimensions (i.e., sexual deviance, criminality, and treatment responsivity) of the Violence Risk Scale – Sexual Offending version (VRS-SO), a validated sexual offending risk assessment and treatment planning tool (Wong, Olver, Nicholaichuk, & Gordon, 2003). Using the same psychometric battery utilized in the Allan et al. (2007) study, which included a measure of sexual interests, Beggs and Grace (2011) found a similar pattern of relationships between the dynamic risk domains assessed psychometrically and the dimensions of the VRS-SO, further providing evidence of validity of psychometric self-report assessment.

An important issue on the topic of dynamic factors is the extent to which there is evidence that these factors are truly dynamic or changing as a result of treatment. A few investigations have provided support of the dynamism these factors. Notably, one study found

support of moderate pre- to post-treatment change in several of the domains of dynamic risk using the STABLE-2000 (Hanson & Harris, 2001), a sexual offending risk assessment tool comprised of six dynamic risk-need areas, and self-report measures of cognitive distortions, intimacy deficits, and loneliness (Nunes, Babchishin, & Cortoni, 2011). Notably, they saw significant reductions in mean scores for nearly all of their self-report measures, with one-third of the sample achieving post-treatment scores in the non-pathological range. Similarly, Jung and Gulayets (2011) found evidence of significant post-treatment change in scores of self-report measures of locus of control and acceptance of responsibility, but no significant change on sexual offending attitudes and most indices of empathy. However, neither of these two aforementioned studies examined the relationship between changes on these measures and post-treatment recidivism, precluding any conclusions about whether this change was risk-relevant. Evidence of this has come from additional research demonstrating a link between self-report treatment change scores and reductions in recidivism (Beggs & Grace, 2011; Hudson, Wales, Bakker, & Ward, 2012; Olver et al. 2014). Examined together, the results of these studies provided evidence of a pattern of inconsistent and weak associations between raw psychometric change scores and recidivism. However, the prediction of recidivism improves when scores are summed as domain and overall totals, as well as when pre-treatment scores are statistically controlled for and partialled out of the change score (Beggs & Grace, 2011; Olver et al., 2014). In fact, both Beggs & Grace (2011) and Olver et al. (2014) found evidence of incremental validity of the domain change scores in predicting recidivism after controlling for static risk.

2.2.3 Current Study

The present study is an examination of psychopathy and treatment change on a battery of psychometric measures administered in real time over several years of operation of a high-intensity sexual offending treatment program. The present study is an extension of the research by Olver et al. (2014) and utilizes overlapping samples and measures. The results of the investigation of Olver et al. (2014) served to replicate and expand on the literature's understanding of the relationships between psychometric treatment change and sexual offending risk and recidivism. The present study intends to expand upon these findings with a focus on the associations between psychometric treatment change and psychopathy. Specifically, this study intends to (1) examine the association of psychological constructs commonly targeted in sexual offence treatment, measured psychometrically via self-report, to psychopathy; (2) examine to

what extent the features of psychopathy are associated with changes on these psychometric domains of functioning; and (3) examine to what extent changes on these domains of functioning are associated with reductions in post-program recidivism in the community controlling for individual differences in psychopathy.

2.2.4 Method

2.2.4.1 Sample

The study's data were obtained archivally from the Regional Psychiatric Centre (RPC), a maximum-security forensic psychiatric facility located in Saskatoon, Saskatchewan. Participants included 211 federally-sentenced males who attended the a high-intensity treatment program for sexual offending (the Clearwater Program) between the years of 1983 and 2009. All participants had a current or prior conviction for a sexual offence and were serving a mean sentence length of 6.06 years ($SD = 3.97$). Approximately one-half (51.20%) of the sample had at least 1 prior conviction for a sexual offence, with 26.60% having 2 or more prior convictions for a sexual offence. Approximately two-thirds of the sample had at least one adult victim (69.20%), while the remainder had exclusively child victims under the age of 14 years (30.80%).

The sample was, on average, 31.80 years old ($SD = 8.80$) and had 9.64 years ($SD = 2.76$) of education. The majority of participants were of White (63.30%) and Indigenous (32.90%) ancestry. Almost one-third of the sample had never been married (31.10%), while 26.80% were divorced or separated, 18.70% were previously common-law, and almost one-quarter (23.40%) were currently married or common-law. The diagnostic information available indicated that 5.80% had a major mental disorder (e.g., mood, psychotic, or anxiety disorder), 56.30% any substance use disorder, 59.60% antisocial personality disorder (ASPD), 82.70% any personality disorder, and 29.80% were diagnosed with any paraphilia.

2.2.4.2 Treatment Program

The Clearwater Program was a cognitive behavioural therapy (CBT)-based program intended to reduce the likelihood of sexual violence. The program began in 1983 and was developed to provide services to high-risk and high-need federally-sentenced men convicted of a sexual offence. This was most often a contact sexual offence. The program was approximately 8-months in duration and the content had evolved over time in keeping with best practices in the sexual offending treatment literature and more specifically, "what works" under the RNR framework. Participants were referred to the program on the basis that they were deemed at high

risk of sexual violence or presented with personal characteristics that warranted formal programming (e.g., psychological concerns such as substance abuse, antisocial personality, or paraphilias). The program provided a combination of individual and group services designed to target areas of concerns related to sexual offending (i.e., criminogenic needs and other psychological constructs related to sexual offending). Areas covered include sexual self-regulation, intimacy concerns, problems in relationships, attitudes supportive of offending behaviour, emotion regulation, healthy sexuality, inappropriate sexual interests, and relapse prevention. The program was staffed by a multidisciplinary team including psychiatric nurses, occupational therapists, psychologists, social workers, psychiatrists, parole officers, and correctional officers. Individual and group services were typically provided by psychiatric nurses. Given the overrepresentation of Indigenous offenders within the Canadian corrections system, Indigenous Elders also played prominent treatment and consultation roles in the program, as well as providing cultural services (e.g., sweat lodges, smudging).

2.2.4.3 Measures

2.2.4.3.1 Psychopathy Checklist – Revised (PCL-R)

The PCL-R is a 20-item symptom construct rating scale designed to assess psychopathy (Hare, 1991, 2003). The items that comprise the tool reflect both personality and behavioral traits of psychopathy and are scored on a 3-point scale: 0 (*Absent*), 1 (*Partially present*), and 2 (*Present*). Individual items are summed to yield a total score, as well as facet and factor scores. The PCL-R can be broken down into two factors and four facets. Factor 1 refers to the interpersonal and affective characteristics of psychopathy (e.g., glibness, remorseless, callousness) and is subdivided into interpersonal and affective facet. Factor 2 measures the chronic antisocial lifestyle aspects of psychopathy and is subdivided into Lifestyle and Antisocial facets. In clinical use, a score of 30 is typically used as the cut-off to indicate someone has psychopathy. In research, which typically uses archival data to score the tool, a cut-off of 25 has been recommended as archival data tends to underestimate interpersonal and affective features (Olver, 2016). The results of numerous studies indicate that the PCL-R has well-established reliability and validity (Hare, 2003). Notably, while the instrument was not intended to predict criminal behavior, factor 2 and the lifestyle and antisocial facets of the PCL-R have demonstrated predictive efficacy in their prediction of recidivistic outcomes (Yang, Wong, & Coid, 2010).

2.2.4.3.2 Depression Proneness Rating Scale

The Depression Proneness Rating Scale (Zemore & Bretell, 1983) is a 13-item self-report instrument that assesses cognitive, emotional, and physiological symptoms of depression. Items are rated on a 9-point Likert-type scale with possible scores ranging from 13 to 117 points. Higher scores indicate increasing depression proneness. The authors of the tool reported a mean score of 55.45 ($SD = 12.63$) in an undergraduate sample and provided evidence of the reliability and validity of the measure. Notably, they reported good internal consistency ($\alpha = .84$) and convergent validity with the short form of the most widely used self-report depression scale, the Beck Depression Inventory ($r = .54$).

2.2.4.3.3 Fear of Negative Evaluation Scale

The Fear of Negative Evaluation Scale (Watson & Friend, 1976) is made up of 30 true-false statements that assess apprehension about the evaluations made by others and distress over negative evaluations. Higher scores indicate increasing fear of negative evaluation. The authors reported a mean score of 15.47 ($SD = 8.62$) in a sample of undergraduate students, high internal consistency ($Kuder-Richardson 20 = .94$) and good test-retest reliability ($r = .78$). An examination of the tool with sexual offenders found mean scores of 18.36 ($SD = 9.81$) and 16.48 ($SD = 8.44$) among individuals with a history of sexual offending against children (Crassati, McClurg, & Browne, 2002). The two means differentiated individuals who had a history of childhood sexual abuse and those who did not, with the higher score found among those who had been sexually abused.

2.2.4.3.4 Social Avoidance and Distress Scale

The Social Avoidance and Distress Scale (Watson & Friend, 1976) comprises 28 true-false statements designed to assess both social avoidance (i.e., avoiding people or escaping social situations) and social distress (i.e., discomfort or negative emotion in social situations). Higher scores indicate greater levels of social anxiety. The authors reported a mean of 9.11 ($SD = 8.01$) in a sample of undergraduate students, high internal consistency ($Kuder-Richardson 20 = .94$), and adequate test-retest reliability ($r = .68$). An examination of the tool with sexual offenders found mean scores of 10.5 ($SD = 5.16$), 12.8 ($SD = 6.69$), and 14.60 ($SD = 4.64$) among offenders with adult victims, male child victims, and female child victims, respectively (Marshall, Barbaree, & Fernandez, 1995). The authors also compared their offending groups to

two non-offender groups, reporting means of 9.6 ($SD = 4.45$) and 12.6 ($SD = 4.67$) in university and community samples, respectively.

2.2.4.3.5 Social Skills Survey

The Social Skills Survey (Goldstein, Sprafkin, Gershaw, & Klein, 1980) is a 30-item self-report inventory designed to assess the extent to which an individual possesses and uses specific social skills (e.g., starting a conversation, apologizing, giving complements). Each item is rated on a 5-point scale (1 = “never good at it” to 5 = “always good at it”). With possible scores ranging from 30 to 150, higher scores indicate better social skills, while lower scores are indicative of poorer social skills.

2.2.4.3.6 Social Self-Esteem Inventory

The Social Self-Esteem Inventory (Lawson, Marshall, & McGrath, 1979) is a 30-item self-report inventory designed to measure one’s confidence and perceived effectiveness in a range of social situations (e.g., “I get along well with other people”). The items are bipolar (i.e., positively and negatively stated) and rated on a 6-point Likert type scale. The items are scored in the non-pathological direction, with possible scores ranging from 30 to 180 and higher scores indicating higher social self-esteem. The authors reported a mean of 132 ($SD = 21$) in their development sample, along with evidence of good test-retest reliability ($r = .88$). There have been several investigations of the tool with sexual offending samples, with a mean of 118.3 reported among individuals with adult victims and means ranging from 109.5 to 126.7 among individuals with child victims (Marshall et al., 1995; Marshall & Mazzucco, 1995; Marshall, Marshall, Sachdev, & Kruger, 2003). Further, in their research, Allan et al. (2007) reported a mean score of 112.96 ($SD = 27.97$) among their sample of individuals convicted of a sexual offence against a child.

2.2.4.3.7 Perceived Stress Scale

The Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983) is a 14-item self-report inventory designed to assess the “degree to which situations in one’s life are appraised as stressful” (Cohen et al., 1983, p. 385). Individuals are asked to respond how often they have experienced feelings and thoughts associated with stress within the last month, ranging from 0 = “never” to 4 = “very often.” The items are bipolar in nature with possible scores range from 0 to 56. Higher scores indicate higher levels of perceived stress. The authors reported means of 23.18 ($SD = 7.31$), 23.67 ($SD = 7.79$), and 25.0 ($SD = 8.00$) among two different university and one

community-based smoking-cessation samples, respectively. They also found evidence of good internal consistency across the samples (α s = .84 - .86), adequate-to-good test-retest reliability (r s = .55 - .85), and evidence of convergent validity with a measure of stressful life events (r s = .24 - .49).

2.2.4.3.8 Locus of Control Behavior Scale

The Locus of Control Behavior Scale (Craig, Franklin, & Andrews, 1984) is a 17-item self-report measure of locus of control (LOC) of behavior, that is, “the extent to which a person perceives events as being a consequence of his or her own behaviour and therefore potentially under personal control” (Craig et al., 1984. p.173). Each item is a statement reflecting internal or external LOC tendencies, and are scored on a six-point Likert scale ranging from 0 = Strongly Disagree to 5 = Strongly Agree. High scores in this measure indicate an increasingly external locus of control. The authors reported a mean of 28.3 (SD = 8.5) in a university sample, along with evidence of good internal consistency (α = .79), high test-retest reliability (r = .90), and convergent validity with the Rotter Internal-External Locus Control scale (r s = .67 and .66 for males and females, respectively). Examinations of the scale with sexual offenders have reported a mean of 27.1 (SD = 12.2) among individuals with offences against children (Parton & Day, 2002), and means of 24.5 (SD = 8.89) (pre-treatment) and 19.7 (SD = 8.78) (post-treatment) among a sample of with a mixed victim profile (Jung & Gulayets, 2011). In their factor analysis, Allan et al. (2007) found that this scale loaded with social inadequacy and pro-offending attitudes, concluding that the tendency to attribute to external factors to the cause of events is consistent with a tendency to use cognitive distortions that externalize blame for one’s behaviour.

2.2.4.3.9 Rotter Internal-External Locus of Control Scale

The Rotter Internal-External Locus of Control Scale (Rotter, 1966) is a 29-item self-report measure consisting of 23 question pairs in forced choice format with one statement in the pair reflecting internal LOC tendencies (i.e., events due to personal or internal factors) and the other, external (i.e., events due to external factors such as luck or powerful others). One point is assigned for each external statement endorsed with total possible scores ranging from 0 to 23. There are also six additional filler questions that are not included in the scoring. The psychometric properties of the scale have been tested on various samples. In their review of numerous studies examining the scale, Rotter (1966) reported means ranging from 5.94 (SD =

3.36) to 9.56 ($SD = 4.10$), with a mean of 7.72 ($SD = 3.65$) in a sample of male inmates. They also reported evidence of moderate internal consistency (i.e., Split Half Spearman-Brown and Kuder Richardson correlations ranging from .69 to .73) and adequate-to-good test-retest reliability ($r_s = .55 - .72$)

2.2.4.3.10 Sexual Attitudes Survey

The Sexual Attitudes Survey (Burt, 1980) is a 34-item self-report inventory of attitudes toward women. Each item is rated on a 7-point Likert type scale ranging from 1= “strongly disagree” to 7 = “strongly agree”. The 34 items, in turn, are broken down into three subscales: Rape Myth Acceptance (i.e., extent to which the respondent espouses false beliefs regarding rape that tend to externalize the blame to women), Adversarial Sexual Beliefs (i.e., cynical and mistrusting attitudes toward women in general), and Acceptance of Interpersonal Violence (i.e., extent to which the respondent condones violent acts perpetrated in relationships, generally against women). Higher scores on each of the subscales indicate increasingly distorted (i.e., negative) attitudes toward women.

2.2.4.3.11 Sex Knowledge Inventory

The Sex Knowledge Inventory (Swartz, 1990) is a factual knowledge test of human reproductive anatomy/physiology, human sexual functioning, contraception, and sexually transmitted infections. There are 53 items on this test which include a combination of labeling diagrams, multiple choice questions, and true-false statements. Possible score range from 0 to 119 with higher scores indicating better global sexual knowledge.

2.2.4.3.12 Hostility Toward Women Scale

The Hostility Toward Women Scale (Check, 1984) is a 30-item trait measure of hostility toward women. Items are rated true-false with possible scores ranging from 0 to 30. Higher scores indicate increasingly negative or hostile attitudes toward women. The author reported adequate internal consistency (*Kuder-Richardson 20* = .80) and test-retest reliability ($r = .83$). Research with a university sample (Malamuth, Sockloskie, Koss, & Tanaka, 1991) reported a mean of 7.29 ($SD = 4.79$) among males while Allan et al. (2007) found a mean of 11.89 ($SD = 6.40$) among their sexual offending sample.

2.2.4.3.13 Buss-Durkee Hostility Inventory

The original Buss-Durkee (BD) Hostility Inventory (Buss & Durkee, 1957) is a 75-item self-report inventory designed to assess cognitive, affective, physical, and behavioral markers of

hostility and aggression. The BD is comprised of seven core subscales (Assault, Indirect Hostility, Irritability, Negativism, Resentment, Suspicion, Verbal Aggression) used to generate a total hostility score. An eighth subscale (Guilt) is not included in the computation of the total score; the Guilt scale was reverse keyed to facilitate interpretation (i.e., higher scores indicate less guilt over expressions of hostility) with the remaining subscales on this measure. All items in the instrument are rated yes-no (0-1), with higher scores on the core seven subscales indicating greater problems with hostility. Research with a mixed sample (i.e., child and adult victims) of sexual offenders reported a total mean of 26.2 ($SD = 12.74$) (Firestone, Nunes, Moulden, Broom, and Bradford, 2005), while other research with non-offending populations reported a mean of 18.65 ($SD = 4.81$) among a university sample (Biaggio, 1980). Research has also found evidence of the predictive validity of the scale for violence and sexual recidivism (Firestone et al., 2005; Kingston, Firestone, Wexler, & Bradford, 2008, including evidence of the scale being able to predict recidivism incrementally to risk assessment measures (Firestone et al., 2005).

2.2.4.3.14 Spielberger State-Trait Anger Inventory

The original Spielberger State-Trait Anger Inventory (Spielberger, 1988) is a 44-item self-report measure of state (i.e., how one currently feels) and trait (how one generally feels) anger. Items are rated on a 4-point Likert type scale from 1= “almost never” to 4 “almost always.” The 10-item subscale measuring trait anger was administered in the clinical assessment battery. Total possible scores on the trait anger subscale range from 10 to 40 with higher scores indicating higher levels of trait anger. The author reported a mean of 18.65 ($SD = 4.81$) for adult males in their normative data. Similarly, Allan et al. (2007) found a men score of 18.93 ($SD = 6.0$) in their study with a sexual offending sample.

2.2.4.3.15 Recidivism Variables

Recidivism data were obtained through a national database of official criminal charges and convictions. Namely, the Canadian Police Information Centre (CPIC). Recidivism was defined as any new conviction incurred post-release. Recidivism was binary coded (0 = *No*; 1 = *Yes*) for three outcomes: (a) sexual recidivism, (b) violent recidivism, and (c) general recidivism. The three outcomes were not mutually exclusive. Sexual recidivism was defined as a new conviction for a sexually motivated offence, including contact (e.g., sexual assault) and non-contact (e.g., exposure of genitals) offences. Offences adjudicated as non-sexual (e.g., assault) but could be determined to be sexual in nature (e.g., sexual assault) were recorded as sexual

recidivism. Violent recidivism was defined as any offence committed against a person, including actual, potential, and threatened harm to a person. The behaviour could be sexual or non-sexual in nature, meaning that this outcome also encompassed sexual recidivism. Finally, general recidivism was defined as any new offence. It was intended as a catch-all to encompass offences that would be considered sexual and/or violent recidivism, as well as additional offences that would not fit in these categories. The conviction date associated with each recidivism outcome was also recorded to permit examination of the time interval from the point of assessment to the time of recidivism or, in the case of non-recidivists, the data capture date.

2.2.4.4 Procedure

This study was granted ethical approval from the University of Saskatchewan's Behavioural Research Ethics Board (#Beh-2609; Appendix A). Data were collected through a retrospective review of the sample's institutional and clinical files. Demographic information was readily available and taken directly from the file, as were the pre- and post-treatment scores for the study's psychometric measures. The measures had been administered to participants as part of routine administration over several years during the operation of the Clearwater Program. The measures administered were selected based on the literature at this time and were administered with the intent of identifying psychological concerns warranting further clinical attention and to evaluate potential treatment gains. Criminal history and recidivism data was collected using CPIC, the national database of official criminal charges and convictions. The PCL-R was scored using available file information. Trained research assistants reviewed and coded the files for information relevant to scoring the PCL-R items. In order to establish inter-rater reliability of the PCL-R ratings, a randomly selected portion of the files ($N = 27$; 12.8%) were coded by two raters. Inter-rater reliability analyses revealed adequate agreement among raters (intraclass correlation coefficients (ICCs) ranging from .64–.88).

2.2.4.5 Data Analytic Plan

The analyses set out to examine the relationships between the PCL-R, treatment change assessed via self-report, and the extent to which these changes are associated with recidivism. The amount of missing data varied across different analyses, as not all of the variables and measures were available for the entire sample. Missing data ranged from 0% – 37.6% and was handled through listwise deletion. As such, sample sizes varied depending on the analysis.

First, descriptive statistics were completed to determine the means and standard deviations for the sample's pre- and post-treatment scores on each psychometric measure. This allows for comparisons between this sample and the samples from prior research to determine the level of pathology in this sample's scores. Pre- and post-treatment scores were also compared to determine the sample's mean change following treatment. The difference was examined using paired t-tests and Cohen's *d* to determine statistical significance and effect size. Means and standard deviations were also completed for the sample's PCL-R scales, as well as a frequency count of the proportion of the sample that would be classified as having "high psychopathy" using the research cut-off of a score of 25. This allows for comparisons to previous research to determine how psychopathic the overall sample is compared to other correctional samples.

Second, in order to establish the associations between the PCL-R scales and the study's treatment measures, the PCL-R facet, factors, and total scores were correlated with the pre- and post-treatment scores. These associations indicate the strength of relationship between psychopathy and the psychological constructs measured in this study. Pearson's correlation coefficients (*r*) were computed to examine the magnitude of these associations.

Third, the PCL-R scales were correlated with treatment change, defined as the difference between the pre- and post-treatment scores. Given the findings of Beggs and Grace (2011) and Olver et al. (2014), residual scores were used. It has been previously pointed out that change scores are significantly impacted by the magnitude of a pre-treatment score in that when a score is more pathological (i.e., higher) it has more room to change than scores that are less pathological (i.e., lower). Using residuals allows for examinations with change scores that statistically control for the pre-treatment score. Residual scores were also used for the PCL-R facets, factor 1, and factor 2 scores, allowing for statistical control of the other scales in the resulting scores (e.g., controlling for factor 1 in the factor 2 score). Pearson's correlation coefficients (*r*) were computed to examine the magnitude of these associations.

Fourth, the predictive validity of both the study's treatment measures and the PCL-R scores for recidivism was examined using Area Under the Receiver Operating Characteristic Curve (AUC from ROC analyses; Rice & Harris, 2005). This statistic is the most commonly used and recommended effect size statistic for recidivism prediction as it is less affected by base rates. In this study, AUC values were interpreted using the criteria of Rice and Harris (2005) which state that an AUC value of .56 corresponds to a small/low effect, .64 reflects moderate

effect, and .71 reflects a large/high effect. Recidivism was examined using 5- and 10-year caps on the follow-up period, as well with as an unfixed follow-up period. This was done for each of the 3 recidivism outcomes: sexual, violent, and general. AUCs were computed for pre- and post-treatment scores for each measure, as well as for the PCL-R facets, factor 1, factor 2, and total scores. The study's pre- and post-treatment scores were entered together to account for missing data. In the event of missing data, the analysis applies listwise deletion, resulting in two AUC values (pre-treatment and post-treatment) using the same number of cases.

Finally, Cox regression survival analysis was employed to examine the predictive associations of the treatment change scores over time, on their own and incremental to psychopathy. First, the predictive associations of each of the treatment change scores with recidivism was examined. Residual changes scores were used to allow for statistical control over pre-treatment scores. An unfixed follow-up period was use for these analyses for each of the 3 recidivism outcomes: sexual, general, and violent. The advantage of using cox regression survival analysis with an unfixed follow-up period is that it controls for individual differences in follow-up time. Next, additional analyses were completed for the significant change score associations observed. Cox regression survival analysis was employed again to examine the incremental contributions of the change scores in predicting recidivism over and above the PCL-R total score.

2.2.5 Results

2.2.5.1 Comparisons of Pre- and Post-Treatment Scores

The means and standard deviations were computed for each measure for the pre-treatment, post-treatment, and treatment change scores. These are presented in Table 2.1. Pre- and post-treatment scores were also compared using paired t-tests and Cohen's d effect size analyses. Descriptively, there is a trend among the means in that prior to treatment, the means are generally consistent with the means observed in previous research for sexual offending samples whereas after treatment, the means generally align with university and other non-incarcerated samples. For example, prior to treatment, the sample had a mean Hostility Toward Women Scale score of 10.06 whereas after treatment, their mean score was 5.96. The pre-treatment score more similarly resembles Allan et al. (2007) reported mean of 11.89 among a sexual offending sample while the post-treatment score is closer to that of the Malamuth et al. (1991) reported mean of 7.29 among a sample of university males. Similarly, prior to treatment, the sample demonstrated

a mean Social Self-Esteem Inventory score of 112.81, which was generally consistent with the findings from sexual offending samples (Allan et al., 2007; Marshall et al., 1995; Marshall & Mazzucco, 1995; Marshall et al., 2003) and nearly one-standard deviation lower than normative mean ($M = 132$) in the developmental sample. However, post-treatment, the sample achieved a nearly identical mean ($M = 131.78$) to that of a developmental sample, indicating an increase in social self-esteem that resembled a non-incarcerated sample. This general trend was found among the scales in which normative data for both sexual offending and other non-incarcerated samples was available. An exception to this was the Buss-Durkee total hostility score, in which the post-treatment score ($M = 25.42$) resembled the means from other sexual offending research (e.g., $M = 26.92$; Firestone et al., 2005) and was nearly one-and-half standard deviations greater than the mean reported for a university sample ($M = 18.65$; Biaggio, 1980).

There was significant post-treatment change observed for nearly all of the scales and subscales. The exception to this was the Buss-Durkee verbal subscale, in which the sample did not demonstrate significant change in the pre- and post-treatment comparisons. The changes observed were each in the expected direction. That is, they reflected gains made in treatment. For example, a reduction in scores where higher scores indicated greater pathology (e.g., Depression Proneness, Rape Myth Acceptance) and an increase in scores where lower scores indicated greater pathology (e.g., Social Self-Esteem, Sex Knowledge, Perceived Stress). The majority of the significant associations were of medium or greater effect ($d \geq 0.50$), with change values of large effect ($d \geq 0.80$) observed with the Social Skills Survey, Perceived Stress Scale, and Rape Myth Acceptance subscale. An exception to this was the Buss-Durkee subscales, in which small effect sizes ($d \geq .20$) were observed for the assault, indirect, irritability, and negativism subscales.

Means and standard deviations were also obtained for the Psychopathy Checklist – Revised scales and total scores. As these were only assessed at one point in time, there is no change data for these scores. The obtained means and standard deviations are as follows: interpersonal facet ($M = 2.23$, $SD = 1.95$), affective facet ($M = 4.58$, $SD = 2.28$), lifestyle facet ($M = 5.49$, $SD = 2.67$), antisocial facet ($M = 5.34$, $SD = 2.82$), factor 1 ($M = 6.87$, $SD = 3.75$), factor 2 ($M = 10.83$, $SD = 4.93$), and total score ($M = 20.12$, $SD = 7.52$). The proportion of the sample that reached the research threshold of “high psychopathy” (i.e., a score of 25 or greater) was also examined. Of the 211 individuals being treated, 27.5% ($N = 58$) met this threshold.

2.2.5.2 Associations Between Pre- and Post-Treatment Scores and PCL-R Scores

Correlations were computed to establish associations between the PCL-R facet, factor, and total scores and pre- and post-treatment scores (Table 2.2). The pattern observed suggested that the scales measuring constructs most related to offending and antisocial behaviour (i.e., Hostility Toward Women, Spielberger State-Trait Anger Inventory, and the Buss-Durkee Hostility Inventory (total score and assault, irritability, resentment, and suspicion subscales) were the most consistently associated with the PCL-R scales. Elevated pre-treatment scores were associated with higher PCL-R scores for nearly all of these scales, indicating the prior to treatment, higher levels of psychopathic traits were associated with greater hostility toward women, anger, and various cognitive and behavioural components of aggression. An exception to this was PCL-R interpersonal facet, which demonstrated significant pre-treatment associations with each of these scales except Buss-Durkee assault subscale. While many of these scales also demonstrated post-treatment associations with the same PCL-R scales, a notable pattern observed across each of these scales was a no longer significant finding between any of these scales and the PCL-R antisocial facet following treatment. With regards to the remaining Buss-Durkee subscales, positive associations were observed between pre-treatment scores on the Buss-Durkee negativism subscale and the PCL-R's lifestyle facet and factor 2 scale, as well as between pre-treatment scores on the Buss-Durkee verbal subscale and the PCL-R lifestyle, antisocial, factor 2, and total scores and between post-treatment scores on the Buss-Durkee verbal subscale and the PCL-R interpersonal, affective, lifestyle, factor 1, factor 2, and total scores. No significant associations were observed between any of the PCL-R scales and the Buss-Durkee indirect and guilt subscales.

Additional associations were observed between the PCL-R and scales related to socioemotional functioning, perceived control over one's personal events, and interpersonal functioning. Elevated pre-treatment scores on the Perceived Stress Scale were associated with elevated scores on each of the PCL-R scales, indicating that individuals with higher psychopathic traits were endorsing higher levels of stress. However, not all of these associations remained significant with the post-treatment scores. Notably, positive post-treatment associations were observed with the PCL-R interpersonal, lifestyle, factor 1, and total scores, but not affective, antisocial, or factor 2 scores. Elevated scores on the Locus of Control Behaviour (pre-treatment and post-treatment) and Rotter Internal-External Locus of Control (pre-treatment) scales were

significantly positively associated with the PCL-R lifestyle facet, with the Locus of Control Behaviour Scale also demonstrating significant positive associations between pre-treatment scores and the PCL-R factor 2 and total scores. This suggests that higher scores on these PCL-R scales are associated with an increased external locus of control (e.g., the belief that events are due to external factors such as luck or powerful others). Pre-treatment scores on the Social Self-Esteem Inventory were significantly positively associated with the PCL-R interpersonal facet, suggesting that prior to treatment, individuals with greater interpersonal psychopathic traits endorsed greater confidence in a range of social situations. No significant associations were observed with the post-treatment scores on the Social Self-Esteem Inventory or between this measure and any other PCL-R scales. Paradoxically, post-treatment scores on the Fear of Negative Evaluation Scale were significantly positively associated with the PCL-R interpersonal facet and factor 1 scores indicating that, following treatment, individuals with higher scores on the interpersonal items of the PCL-R were endorsing greater fear of negative evaluation by others. Finally, elevated post-treatment scores on the Social Avoidance and Distress Scale were significantly associated with higher scores on the PCL-R lifestyle facet, suggesting the individuals with high lifestyle psychopathic traits were more likely to avoid social situations or experience distress or negative emotion in social situations. However, no significant associations were observed with the pre-treatment scores on this scale or with any other PCL-R scale. No significant associations were observed between Depression Proneness Scale or Social Skills Survey and any of the PCL-R scales.

Finally, with regards to the scales measuring sexual attitudes, beliefs, and knowledge, elevated pre-treatment Rape Myth Acceptance and Adversarial Sexual Beliefs scores were associated with higher affective, lifestyle, and PCL-R factor 1 scores, with the Adversarial Sexual Beliefs also demonstrating significant positive associations between pre-treatment scores and PCL-R total score, and between post-treatment scores and the PCL-R affective facet. This suggests that higher PCL-R interpersonal and affective scores are associated with greater endorsement of rape myths and other adversarial sexual beliefs. Pre-treatment scores on the Sex Knowledge Inventory were inversely related to scores on the PCL-R lifestyle and antisocial facets, as well as factor 1 and 2 and total scores. There were no significant associations with post-treatment scores and any of the PCL-R scales. This indicates that prior to treatment, individuals with higher lifestyle and antisocial psychopathic traits had less factual knowledge of

human sexuality and sexual functioning. No significant associations were found between the Acceptance of Interpersonal Violence Scale and any of the PCL-R scales.

2.2.4.3 Associations Between Residual Treatment Change Scores and PCL-R Scores

Correlations were computed to establish associations between the PCL-R facet, factor, and total scores and treatment change scores (Table 2.3). Residual changes scores were used to allow for statistical control over pre-treatment scores. Similarly, residual scores were used for the PCL-R facets and factors in order to allow for statistical control over the other scales in the resulting score of each PCL-R scale.

A number of significant inverse associations were observed, indicating that higher PCL-R scores were related to decreased pre-post-treatment change on select measures. These relationships were seen between the Fear of Negative Evaluation Scale and PCL-R factor 1 and total scales, the Social Avoidance and Distress Scale and the PCL-R lifestyle scale, the Locus of Control Behavior Scale and PCL-R affective scale, the Adversarial Sexual Beliefs and the PCL-R affective scale, the Buss-Durkee verbal subscale and the PCL-R factor 1 and total scores, the Buss-Durkee guilt subscale and PCL-R lifestyle score, and the Spielberger State-Trait Anger Inventory and PCL-R lifestyle score. These relationships are indicative of lower amounts of change in these areas among those with increased psychopathic traits in these areas.

A number of significant positive associations were also observed, indicating that higher PCL-R scores were related to increased pre-post-treatment change. These relationships were seen between the Locus of Control Behavior Scale and the Rape Myth subscale and PCL-R interpersonal scale, the Adversarial Sexual Beliefs Scale and PCL-R interpersonal and antisocial scales, the Sex Knowledge Inventory and the PCL-R factor 2 score, the Buss-Durkee total, assault, irritability, and resentment scores and the PCL-R antisocial scale, and the Spielberger State-Trait Anger Inventory and PCL-R antisocial scale. These relationships are indicative of greater amounts of change among those with higher levels of psychopathic traits in these areas.

In all, the affective and lifestyle components were associated with decreased treatment change while the interpersonal and antisocial components were associated with increased treatment change. Higher interpersonal psychopathic traits were linked to positive treatment change in locus of control and endorsement of rape myths and adversarial sexual beliefs, whereas higher affective psychopathic traits were associated with decreased treatment change in locus of control and adversarial sexual beliefs. Higher factor 1 traits (i.e., the combination of

interpersonal and affective traits) were associated with decreased treatment change in fear of negative evaluation and verbal hostility. While higher lifestyle psychopathic traits were associated with decreased treatment change in social avoidance and distress, guilt, and anger, higher antisocial traits were associated with positive treatment change in total aggression including the assault, irritability, and resentment, as well as positive treatment change in self-reported anger and adversarial sexual beliefs. Higher factor 2 traits (i.e., the combination of lifestyle and antisocial traits) were also associated with increased treatment change in sexual knowledge.

2.2.5.4 Predictive Validity of the Pre- and Post-Treatment Scores for Recidivism

ROC analyses were used to examine the measure's predictive accuracy for each of the recidivism outcomes (sexual, violent, and general) at each of the follow-up periods (5-year, 10-year, and overall). The predictive accuracy of both the pre-treatment and post-treatment scores were examined. The sample was followed up by a mean of 18.94 years ($SD = 3.77$) post-release. The overall recidivism rates were 30.30% (64 of 211) for sexual recidivism, 56.90% (120 of 211) for violent recidivism, and 76.30% (161 of 211) for general recidivism. Table 2.4 presents the results of the ROC analyses.

Overall, of the significant associations observed, select scales most consistently predicted violent recidivism. Significant positive associations of moderate strength were observed between the Buss-Durkee assault subscale and 5-year (pre-treatment), 10-year (post-treatment), and overall (pre-treatment and post-treatment) violent recidivism outcomes, and between the Locus of Control Behaviour Scale and 10-year and overall follow-up violent recidivism outcomes. This suggests that endorsement of physically aggressive behaviour and an external locus of control were predictive of violent recidivism. Small positive significant associations were also observed between the Perceived Stress Scale (pre-treatment) and the 10-year and overall violent recidivism outcomes, the Buss-Durkee total (pre- and post-treatment), irritability (pre-treatment), verbal (pre-treatment) scores and the 10-year and overall violent recidivism outcomes, the Buss-Durkee verbal (pre-treatment) and Suspicion (post-treatment) scores and the 5-year violent recidivism outcome, the Buss-Durkee resentment (pre-treatment) and the Buss-Durkee suspicion (pre- and post-treatment) subscales and the 10-year violent recidivism outcome, and the Spielberger State-Trait Anger Scale and the 10-year (pre-treatment) and overall (post-treatment) recidivism outcomes. Taken together, these associations suggest that self-reported stress, anger,

and various behavioural and cognitive aspects of aggression are predictive of violent recidivism. There was also one inverse significant association observed between the Sex Knowledge Inventory (post-treatment) and the overall violent recidivism outcome, indicating that less knowledge about sex is predictive of violent recidivism.

With regards to the other two recidivism outcomes, a number of small and moderate positive associations were observed between select scales and general recidivism outcomes. One moderate positive association was observed between the Buss-Durkee assault (pre- and post-treatment) subscale and the 10-year general recidivism outcome. Small positive associations were also observed between the Buss-Durkee assault subscale and the 5-year (post-treatment) and overall (pre- and post-treatment) general recidivism outcomes and the Buss-Durkee verbal subscale (pre-treatment) and the 5-year general recidivism outcome. The Spielberger State-Trait Anger scale (pre-treatment) and Rape Myth Acceptance subscale were also predictive and the 10-year general recidivism outcome. Taken together, these associations suggests that endorsement of physical and verbal aggression, anger, and attitudes that support rape myths are associated with general recidivism. There was also one small inverse association between the Social Avoidance and Distress Scale (pre-treatment) and the overall general recidivism scale, indicating that lower scores on this scale were predictive of general recidivism when no fixed follow-up was used. Finally, one significant relationship was observed between sexual recidivism and pre- and post-treatment scores. The Perceived Stress Scale demonstrated a moderate, positive predictive association with overall sexual recidivism, indicating that higher levels of stress were predictive of sexual recidivism when no fixed follow-up period was used.

2.2.5.5 Predictive Validity of the PCL-R Scores for Recidivism

ROC analyses were used to examine the PCL-R predictive accuracy for each of the recidivism outcomes (sexual, violent, and general) at each of the follow-up periods (5-year, 10-year, and overall). Table 2.5 presents the results of the ROC analyses. The PCL-R lifestyle, antisocial, factor 2, and total scores were predictive of each of the recidivism outcomes (sexual, violent, and general at the various follow-up periods), with the largest associations observed between the PCL-R lifestyle facet and violent recidivism (unfixed follow-up), the PCL-R antisocial facet and general recidivism (5- and 10-year follow-up), the PCL-R factor 2 score and each of the violent and general recidivism outcomes, and the PCL-R total score and violent recidivism (10-year follow-up). The remaining associations were small and moderate in strength.

The interpersonal facet and factor 1 scores also demonstrated small predictive associations with sexual recidivism (5-year follow-up) and the affective facet with violent recidivism (10-year and unfixed follow-up). Finally, factor 1 scores were predictive of violent recidivism (5-year, 10-year, and unfixed follow-up). Each of these associations were small in effect.

2.2.5.6 Associations Between Treatment Change and Recidivism

Cox regression analyses were calculated to determine the predictive associations between treatment change scores and recidivism. The associations with sexual, violent, and general recidivism were each examined using unfixed follow-up periods. In these analyses the residual scores are used, allowing for statistical control of the pre-treatment score in the resulting change score. Three treatment change scores emerged as predictive (Table 2.6). Changes on the Hostility Toward Women Scale were predictive of violent recidivism in that changes on this scale were significantly associated with decreased violent recidivism. Similarly, pre-posttreatment changes on the Buss-Durkee Inventory (total score) were significantly associated with decreased violent recidivism, and pre-post-treatment changes on the Buss-Durkee assault subscale were significant associated with decreased sexual, violent, and general recidivism.

2.2.5.7 Incremental Contributions of Change Scores to the Prediction of Recidivism

The change scales demonstrating significant associations in the previous set of analyses (Hostility Toward Women, Buss-Durkee total, Buss-Durkee assault; Table 2.6) were entered into another set of Cox regression analyses used to examine the independent predictive contributions of the change scores for recidivism over and above the PCL-R total score. Of these three scales, only the Buss-Durkee assault scale emerged as incrementally predictive for violent and general recidivism (Table 2.7). Specifically, changes in the Buss-Durkee assault scale were associated with a decrease in violent and general recidivism. Although the association was not significant for sexual recidivism, it was trending in the direction of significance ($p = 0.53$). The other two scales did not demonstrate predictive associations with any of the recidivism outcomes with the PCL-R entered into the regression model, indicating that these scales did not provide unique variance over and above what is captured with the PCL-R.

2.2.6 Discussion

The present study explored the relationships between self-report treatment change, psychopathy, and recidivism in a sample of Canadian federally incarcerated males convicted of sexual offences. The study's sample received treatment services from the Clearwater Program, a

CBT-based sexual offending program grounded in RNR principles. The analyses featured a battery of psychometric assessment measures administered in real time pre- and post-treatment as part of routine service delivery. The assessment measures included had been selected by the treatment program as relevant areas of sexual offending behaviour, including measures with theoretical links to dynamic risk factors that have been identified in the literature (e.g., social and emotional functioning, offence-supportive attitudes, anger and hostility). Psychopathy was conceptualized and assessed using the PCL-R. The sample was followed for approximately 18 years post-release.

2.2.6.1 Overall Pre-Posttreatment Change in Psychometric Scores

Statistically significant pre-post-treatment changes were observed for nearly all of the study's psychometric measures, and in the expected the direction. That is, there was a decrease in scores whereby a higher score would signal greater psychopathology and need (e.g., rape myth acceptance, hostility toward women, perceived stress) and an increase in scores whereby a higher score would indicate reduced psychopathology and need (e.g., social self-esteem, sexual knowledge). As noted, several of the pre-treatment scores were consistent with previous research examining the tool with offending populations, whereas the post-treatment scores were consistent with means observed in studies of non-incarcerated populations. This suggests that following treatment, the average level of pathology was more similar to that of community and university samples rather than an offending sample. An exception to this was the Buss-Durkee Hostility Inventory, in which the post-treatment mean remained nearly one-and-half standard deviations greater than the mean reported for a university sample (Biaggio, 1980). This likely reflects the sample having a higher-than-average mean at the start of treatment. Notably, the study's sample obtained a pre-treatment Buss-Durkee total score nearly half a standard deviation greater than that of Firestone et al.'s (2005) sexual offending sample.

Consistent with previous research (Nunes et al., 2011), the majority of the pre-posttreatment changes were at least moderate in effect size ($d \geq .50$), with large effects observed for select scales (i.e., Social Skills Survey, Perceived Stress Scale, and Rape Myth Acceptance). The exception to this was with the Buss-Durkee subscales. One of these scales did not reach the threshold for significant change (i.e., verbal) and four of the pre-posttreatment differences were small in effect size (i.e., assault, indirect, irritability, and negativism). While at first glance this may suggest that less treatment change occurred in these areas compared to others, the

differences in effect may be partly explained by the range of scores. As subscales, there is a smaller possible range of scores, reducing the amount of change that can occur relative to scales where a larger range of scores is possible. For example, the Buss-Durkee indirect subscale contains 9 items that are each given a value of 0 or 1, whereby the Social Skills Survey contains 30 items given a value between 1 and 5, resulting in two markedly different ranges of scores that can influence the magnitude of effect. Further evidence of this is found in a difference of moderate effect size between pre- and post-treatment Buss-Durkee total scores, which combine the subscales into a score with a greater range.

2.2.6.2 Associations Between Psychopathy and Self-Reported Treatment Needs

The study's sample was relatively psychopathic, with an average PCL-R score of approximately 20 and with 27.5% of the sample meeting the research cut-off (i.e., 25) of psychopathy. This exceeds the high end of base rates generally seen in incarcerated populations, which have been reported as between 15 and 25% (Hare, 1996; Wong, 1984). As a sexual offending sample with mixed victimology (i.e., adult victims, child victims, and both), this number is generally consistent with base rates from previous research, which suggest that the base rates are relatively low among samples with only child victims (i.e., 5-10%) and higher among samples with adult or mixed victims (i.e., approximately 33%) (Olver & Wong, 2006; Olver, 2016; Porter et al., 2000).

The associations between the raw pre- and post-treatment psychometric scores and the PCL-R scales revealed interesting and conceptually meaningful findings. Scores, and in particular pre-treatment scores, on scales reflective of behavioural and cognitive aspects of anger and hostility (i.e., Hostility Toward Women, Buss-Durkee total scores and several subscales, and Spielberger State-Trait Anger Inventory) were each modestly yet significantly positively associated with nearly all aspects of psychopathy. This suggests that each aspect of psychopathy is associated with higher self-reported levels of anger and hostility. This is generally consistent with the overall essence of the personality disorder, which is self-centered and lacking in perspective taking. Individuals with psychopathy may be more likely to externalize blame for their behaviour, resulting in increased feelings of anger, hostility, and resentment towards those they may attribute fault to for their difficulties. In further support of this, total, factor 2, and lifestyle facet PCL-R scores were associated with an increasingly external locus of control, indicating that individuals with these traits are more likely to attribute external causes to life

events rather than internal factors. Having a closer look at the Buss-Durkee Hostility Inventory, no associations emerged between the guilt subscale and any of the components of psychopathy. This is consistent with the nature of psychopathy which is characterized by the absence of guilt or remorse for behaviours. There were also no or few weak associations between the negativism and indirect subscales and the various components of psychopathy. This, in combination with relatively stronger and more consistent relationships with the assault, irritability, and resentment, suspicion subscales, suggests that individuals with psychopathy may be more likely to experience and engage in behaviours of more overt and direct hostility (e.g., engaging in physical violence, feelings of general distrust of others, and holding grudges and “getting back” at others when wronged) compared to more subtle and indirect forms (e.g., spreading rumors and passive-aggressiveness when wronged). The Perceived Stress Scale was also related to each component of psychopathy, suggesting that overall, individuals with psychopathic traits are more likely to endorse experiences of stress. While this may appear to be contradictory with the personality construct, which is characterized by a shallow range of emotions and affect, it may be that this scale serves as a proxy for criminogenic needs related to problems in different risk-relevant areas (e.g., family-marital relationships, work-school, and leisure-recreation). This would be consistent with prior research demonstrating that incarcerated males with psychopathy are significantly more likely to have greater criminogenic need in these areas relative to their non-psychopathic counterparts (Simourd & Hoge, 2000). In further support of this, this scale was predictive of both violent and sexual recidivism in the current study. An alternative explanation may be that individuals with psychopathy are more likely to endorse increased experiences of stress in attempt to alter how other’s view them (e.g., to receive sympathy for instrumental gain).

There were a number of scales that were associated with only certain aspects of psychopathy, and many of these relationships were conceptually consistent with the theoretical underpinnings of psychopathy. For instance, pre-treatment scores of social self-esteem were positively associated with the interpersonal facet of psychopathy, indicating that individuals with interpersonal psychopathic traits regard themselves as more effective in social situations. This is generally consistent with the flavour of this facet, which is characterized by grandiosity in interpersonal relationships. Somewhat paradoxically, post-treatment fear of negative evaluation scores were also positively associated with interpersonal facet of psychopathy. While this appears counterintuitive, there may be plausible theoretically consistent reasons for this. For

example, these scores were only observed post-treatment, introducing the possibility that there may have been learning over the course of treatment that resulted in increased concern about what others make think of them. It would remain unclear whether this reflects genuine concern of evaluation or a concern about how this may impact their ability to be effective in using their relationships for instrumental gain, the latter of which would be more consistent with the nature of psychopathy. It is also plausible that this finding is reflective of a spurious correlation, which becomes more likely with an increasing number of individual analyses where familywise error is not controlled for. Of note, when using a significance value of $p < 0.05$, we can expect 5% of observed significant correlations to be due to chance. Given the number of individual significant correlations observed in this study, it is plausible that approximately seven or eight of the observed associations are due to chance. Thus, caution is warranted, particularly when an association appears as a one-off and not part of a pattern of consistent associations.

Other observed associations included a significant positive relationship between lifestyle features of psychopathy and social avoidance and distress, which likely reflects elements of the lifestyle aspect of psychopathy that is parasitic and lacking any significant intimacy with others. Factor 1, affective, and lifestyle PCL-R scores were associated with pre-treatment scores on scales of sexual offense supportive attitudes; namely, endorsement of rape myths and adversarial sexual beliefs. This is consistent with psychopathy, and in particular affective traits of psychopathy, which are characterized by a lack of guilt or empathy and failure to take responsibility. Individuals with psychopathy may be more likely to engage in these cognitive distortions as a way of evading responsibility and justifying their behaviour. Finally, pre-treatment scores of sexual knowledge were significantly and inversely associated with lifestyle, antisocial, factor 1, factor 2, and total PCL-R scores, indicating that psychopathy is associated with less sexual knowledge. This is an interesting finding and while it may reflect a general lack of knowledge relative to those without these traits, it may also be indicative of attempts to portray oneself a certain way. For example, it is plausible that individuals with psychopathy may think that a lack of sexual knowledge makes them less culpable for their behaviours and may garner sympathy from others.

2.2.6.3 Associations Between Psychopathy and Self-Reported Treatment Change

A primary objective of this study was to examine the relationship between psychopathy and self-reported treatment change. The study made use of residual change scores for these

analyses. The residual change scores statistically control for the pre-treatment score in the change score, allowing for examination of the associations while statistically controlling for the influence of the pre-treatment scores. More specifically, it controls for any pre-post-treatment differences that may be accounted for by how much change was possible (i.e., due to having a more pathological score to begin with and thus, by default, having more room to change). Residual scores were also used for the psychopathy facets and factors, allowing for examination of each individual component while statistically controlling for the influence of the other facets and factors.

The study's analyses revealed some interesting patterns. Specifically, while the findings from the overall sample indicated that significant moderate to large changes had occurred on nearly all of the scales and subscales, we begin to see a more mixed pattern of change when these changes are looked at within the context of psychopathy. Encouragingly, there were a number of associations indicating that psychopathy was associated with positive treatment change. More specifically, PCL-R interpersonal and antisocial scores were exclusively associated with positive change. This finding was particularly pronounced for the antisocial facet. This facet was linked to the most self-reported positive changes, and changes that were observed in risk-relevant areas, including hostility and anger scores. However, there were also associations indicative of decreased treatment change and potentially more pathological scores following treatment among other psychopathic traits. Notably, the affective facet was associated with reduced treatment change in adversarial sexual beliefs and locus of control and the lifestyle facet was associated with reduced change in anger and social avoidance and distress. The lifestyle facet was also associated with fewer post-treatment decreases in guilt.

This pattern may have interesting implications for the therapeutic response of psychopathy. Individuals higher in interpersonal and antisocial psychopathic traits are reporting more positive treatment change than those with predominantly affective and lifestyle traits. This is generally consistent with previous research, which has found the affective facet to be associated with the worst treatment outcomes, including poorer working alliance and treatment progress (DeSorcy et al., 2020; Olver, 2016; Sewall & Olver, 2019). Further, previous research has found an association between the lifestyle facet and performance on therapeutic tasks during treatment (DeSorcy et al., 2020), and the affective traits to be most strongly linked to treatment non-completion (Olver & Wong, 2011; Sewall & Olver, 2019). Thus, in-line with previous

research, the study's findings likely reflect difficulties with treatment among those with affective and lifestyle traits and may signal reduced treatment benefit due to difficulties with motivation and building alliance, and poorer work ethic with therapeutic tasks. An important question is whether the positive treatment change observed among the antisocial and interpersonal traits is reflective of genuine treatment change or attempts to portray oneself in a particular way following treatment. It is argued that while the associations between the interpersonal facet and treatment change may be at least partially attributed to the nature of these traits, which involve manipulation, deceit, and tendency to portray oneself in a grandiose way, the associations observed with the antisocial facet likely reflective positive changes made in treatment. At the facet level, it is the antisocial psychopathic traits where we would expect to see the most change, given that these traits most overlap with risk. This is supported in previous research demonstrating that the antisocial facet is the most strongly linked to recidivism (Hawes et al., 2013). In this sense, associations between this facet and positive risk-relevant treatment change would be expected, and the study's findings most likely reflect changes occurring as a result of the sample receiving appropriate, RNR-based treatment. This is largely in support of the main premises of Wong's two-component model in that the antisocial traits appeared to be the most amenable to change, however, the findings with the lifestyle traits may indicate that these traits pose additional responsivity concerns that warrant further attention. It is also important to note that each of these associations were weak-to-small in magnitude, precluding any strong conclusions and warranting further research.

2.2.6.4 Links Between Psychometric Treatment Change, Psychopathy, and Recidivism

In the present study, psychopathy was associated with sexual, violent, and general recidivism, with the antisocial facet, lifestyle facet, and factor 2 (i.e., the combination of the antisocial and lifestyle facets) scores coming out as the strongest and most consistent predictors. This is consistent with the literature and specifically, meta-analytic research demonstrating factor 2 to be the strongest predictor of recidivism (Leistico et al., 2008; Yang et al., 2010), including sexual recidivism (Hawes et al., 2013). Also consistent with previous research, psychopathy was a stronger predictor of non-sexual violence than it was sexual violence (Hawes et al., 2013). The predictive associations of the raw pre- and post-treatment scores were also examined for each of the psychometric self-report measures. These are not discussed in detail here, as they are comparable to the research of Olver et al. (2014), which utilized overlapping measures and

samples to the current study and sought out to examine the relationships between these scales and risk and recidivism. The study found a number of predictive associations between the scales and various recidivism outcomes, albeit weaker in magnitude to that of formalized risk assessment measures. The authors concluded that while psychometric self-report measures do not appear to capture risk areas as well as conventional risk assessment measures, their findings provide support for the validity of psychometric measures.

Perhaps the most meaningful research question for this study was whether the treatment change observed in the study is risk-relevant (i.e., linked to recidivism), particularly after controlling for the predictive effects of psychopathy. The results of these analyses indicated that positive changes in self-reported hostility (overall hostility (i.e., total score) and attitudes endorsing use of physical violence (i.e., assault subscale), as measured by the Buss-Durkee Hostility Inventory, and hostility toward women, as measured by the Hostility Toward Women Scale) were associated reduced rates of violent recidivism. The Buss-Durkee assault subscale was also predictive of both sexual and general recidivism. However, only the Buss-Durkee assault subscale remained predictive of recidivism after controlling for psychopathy. Specifically, the Buss-Durkee assault subscale provided unique variance to the prediction of general and violent recidivism, over and above the PCL-R. It did not emerge as uniquely predictive of sexual recidivism although this finding was approaching significance. Said another way, the significant relationships observed between treatment change and recidivism can generally be accounted for by variance within psychopathy scores. The exception to this is the Buss-Durkee assault subscale, which contains information unique to PCL-R scores are improved the prediction of general and violent recidivism. It is plausible that, as a self-report measure, this subscale provides more insight into an individual's attitudes towards the use of physical violence that is uniquely predictive of their propensity for future offending behaviour. It may be able to capture this more effectively than the PCL-R, which is scored by a clinician or researcher based on both the behaviour of and statements made by the individual being assessed.

2.2.6.5 Conclusions

The present study is a novel investigation of self-report treatment change, psychopathy, and recidivism in a sample of incarcerated males who participated in a high-intensity RNR-based treatment program for sexual offending. Important strengths include the use of psychometric measures that were administered in real time and a lengthy follow-up period for capturing

recidivism data following test administration. The study included measures designed to assess risk-relevant treatment areas for men who have sexually offended. This allowed for an examination of the therapeutic response of psychopathy using both recidivism and other risk-relevant variables as outcome variables, addressing some of the primary concerns of previous research which emphasized variables with limited relevance within an RNR framework.

The current findings provide additional support against the notion that treatment is ineffective and harmful for individuals with psychopathy. Meaningful treatment change was observed for the entire sample, which had relatively high base rates of psychopathy (i.e., 27.5%) and a mean PCL-R score 20. Notably, significant treatment gain of moderate-to-large effect was observed for nearly all of the study's measures and change on select scales associated with hostility was associated with reduced recidivism rates, albeit only self-reported scores endorsing physical violence emerged as incremental to psychopathy in the prediction of recidivism. This study examined change across each of the facets of psychopathy, allowing for a more multi-faceted understanding of the psychopathy's response to treatment. The results revealed an interesting pattern whereby positive and negative treatment changes were differentially associated with the various components of psychopathy. Notably, positive treatment changes were associated with higher scores on the interpersonal and antisocial facets while the affective and lifestyle facets were generally associated with reduced treatment change. These findings are generally consistent with previous literature and may have implications for the way in which treatment is approached with individuals high in particular psychopathic traits.

2.2.6.6 Limitations and Future Directions

An important study limitation is the use of self-report measures. While there have now been a number of investigations that have utilized similar and overlapping measures with the current study, self-report measures introduce the possibility of social desirability influences. This concern is arguably especially relevant with psychopathy, which by nature lends itself to more manipulative and deceitful behaviour where it can be used for instrumental gain. The ways in which this may have influenced specific results have been discussed throughout this manuscript. While social desirability was not examined explicitly in this study, a measure was included in the work of Olver et al. (2014), which utilized an overlapping sample. They found that socially desirable responding was associated with the endorsement of less pathological scores and greater therapeutic improvement. Thus, caution is warranted in interpreting the results as a true

reflection of the attitudes and functioning of the sample. A second limitation is the extent to which the inclusion of measures and treatment areas was limited to the availability of measures used in the treatment program. While these were selected with the literature in mind, this has evolved considerably since the period that this program was in effect. As such, this study does not include certain measures that were featured in other studies and are standard in current assessment approaches of sexual offending. For example, measures of attitudes specific to sex with children. There was also no measure of deviant sexual interest, which has emerged consistently as predictive of future sexual offending behaviour. Finally, during the several years the program was running, many of the measures were either swapped out or stopped being used, in keeping with the evolving literature. This has implications for research in that there are unequal *ns* for the measures, limiting the power of some of the analyses. Overall, this study expands upon the literature's understanding of the treatment response of psychopathy and provides preliminary evidence of differential associations of treatment change across the various facets. Future research efforts may wish to explore these relationships further.

References

- Allan, M., Grace, R. C., Rutherford, B., & Hudson, S. M. (2007). Psychometric assessment of dynamic risk factors for child molesters. *Sexual Abuse: A Journal of Research and Treatment, 19*, 347–367.
- Beech, A. R. (1998). A psychometric typology of child abusers. *International Journal of Offender Therapy and Comparative Criminology, 42*, 319–339.
- Beggs, S. M., & Grace, R. C. (2011). Treatment gain for sexual offenders against children predicts reduced recidivism: A comparative validity study. *Journal of Consulting and Clinical Psychology, 79*, 182–192.
- Biaggio, M. K. (1980). Assessment of anger arousal. *Journal of Personality Assessment, 44*, 289–298.
- Bonta, J., & Andrews, D. A. (2007). *Risk-need-responsivity model for offender assessment and rehabilitation* (User Report No. 2007-06). Ottawa, Canada: Public Safety Canada
- Burt, M. R. (1980). Cultural myths and supports for rape. *Journal of Personality and Social Psychology, 38*, 217–230.
- Buss, A. H., & Durkee, A. (1957). An inventory for assessing different kinds of hostility. *Journal of Consulting Psychology, 21*, 343–349.
- Check, J. V. P. (1984). *The Hostility Toward Women Scale* (Unpublished Dissertation). University of Manitoba, Winnipeg, MB.
- Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior, 24*, 385–396.
- Collaborative Outcome Data Committee (2007). *The Collaborative Outcome Data Committee's guidelines for the evaluation of sexual offender treatment outcome. Treatment of sexual offenders research Part 2: CODC Guidelines* (Corrections Research User Report No. 2007-03). Ottawa, Ontario: Public Safety Canada.
- Craig, A. R., Franklin, J. A., & Andrews G. (1984). A scale to measure external locus of control of behavior. *British Journal of Medical Psychology, 57*, 173–180.
- Craig, L. A., Thornton, D., Beech, A., & Browne, K. D. (2007). The relationship of statistical and psychological risk markers to sexual reconviction in child molesters. *Criminal Justice and Behavior, 34*, 314–329.

- Craissati, J., McClurg, G., & Browne, K. (2002). Characteristics of perpetrators of child sexual abuse who have been sexually victimized as children. *Sexual Abuse: A Journal of Research and Treatment, 14*, 221–235.
- DeSorcy, D. R., Olver, M. E., & Wormith, J. S. (2020). Working alliance and psychopathy: Linkages to treatment outcome in a sample of treated sexual offenders. *Journal of Interpersonal Violence, 35*, 1739–1760.
- Firestone, P., Nunes, K. L., Moulden, H., Broom, I., & Bradford, J. M. (2005). Hostility and recidivism in sexual offenders. *Archives of Sexual Behavior, 34*, 277–283.
- Goldstein, A. P., Sprafkin, R. P., Gershaw, N. J., & Klein, P. (1980). *Skillstreaming the adolescent: A structured learning approach to teaching prosocial skills*. Rockville, Maryland: Research Press Company.
- Hanson, R. K. (2000). Risk assessment. Beaverton, OR: Association for the Treatment of Sexual Abusers.
- Hanson, R. K., & Harris, A. J. R. (2001). A structured approach to evaluating change among sexual offenders. *Sexual Abuse: A Journal of Research and Treatment, 13*, 105–122.
- Hanson, R. K., Harris, A. J. R., Scott, T., & Helmus, L. (2007). *Assessing the risk of sexual offenders on community supervision: The dynamic supervision project* (User Report No. 2007-05). Ottawa, Canada: Public Safety Canada.
- Hanson, R. K. & Morton-Bourgon, K. E. (2005). The characteristics of persistent sexual offenders: A meta-analysis of recidivism studies. *Journal of Consulting and Clinical Psychology, 73*, 1154-1163.
- Hanson, R. K., & Thornton, D. (1999). *Static-99: Improving actuarial risk assessments for sex offenders* (User Report No. 99-02). Ottawa: Department of the Solicitor General of Canada.
- Hanson, R. K., & Thornton, D. (2000). Improving risk assessments for sex offenders: A comparison of three actuarial scales. *Law and Human Behavior, 24*, 119–136.
- Hare, R. D. (1991). *The Hare Psychopathy Checklist–Revised*. Toronto, ON: Multi-Health Systems.
- Hare, R. D. (2003). *Manual for the Revised Psychopathy Checklist* (2nd ed.). Toronto, ON: Multi-Health Systems.

- Harris, G., & Rice, M. (2006). Treatment of psychopathy: A review of empirical findings. In C. Patrick (Ed.), *Handbook of psychopathy* (pp. 555–572). New York, NY: Guilford.
- Hawes, S. W., Boccaccini, M. T., & Murrie, D. C. (2013). Psychopathy and the combination of psychopathy and sexual deviance as predictors of sexual recidivism: Meta-analytic findings using the Psychopathy Checklist—Revised. *Psychological Assessment, 25*, 233–243.
- Hudson, S. M., Wales, D. S., Bakker, L., & Ward, T. (2002). Dynamic risk factors: the Kia Marama evaluation. *Sexual Abuse: A Journal of Research and Treatment, 14*, 103–119.
- Jung, S., & Gulayets, M. (2011). Using clinical variables to evaluate treatment effectiveness in programmes for sexual offenders. *Journal of Sexual Aggression, 17*, 166–180.
- Kingston, D. A., Firestone, P., Wexler, A., & Bradford, J. M. (2008). Factors associated with recidivism among intrafamilial child molesters. *Journal of Sexual Aggression, 14*, 3–18.
- Langton, C. M., Barbaree, H. E., Harkins, L., & Peacock, E. J. (2006). Sex offenders' response to treatment and its association with recidivism as a function of psychopathy. *Sexual Abuse: Journal of Research and Treatment, 18*, 99–120.
- Lawson, J. S., Marshall, W. L., & McGrath, P. (1979). The social self-esteem inventory. *Educational and Psychological Measurement, 39*, 803–811.
- Leistico, A. M. R., Salekin, R. T., DeCoster, J., & Rogers, R. (2008). A large-scale meta-analysis relating the Hare measures of psychopathy to antisocial conduct. *Law and Human Behavior, 32*, 28–45.
- Looman, J., Abracen, J., Serin, R., & Marquis, P. (2005). Psychopathy, treatment change, and recidivism in high-risk, high-need sexual offenders. *Journal of Interpersonal Violence, 20*, 549–568.
- Malamuth, N. M., Sockloskie, R. J., Koss, M. P., & Tanaka, J. S. (1991). Characteristics of aggressors against women: Testing a model using a national sample of college students. *Journal of Consulting and Clinical Psychology, 59*, 670–681.
- Marshall, W. L., Barbaree, H. E., & Fernandez, Y. M. (1995). Some aspects of social competence in sexual offenders. *Sexual Abuse: A Journal of Research and Treatment, 7*, 113–127.

- Marshall, W. L., Marshall, L. E., Sachdev, S., & Kruger, R. (2003). Distorted attitudes and perceptions and their relationship with self-esteem and coping in child molesters. *Sexual Abuse: A Journal of Research and Treatment*, *15*, 171–181.
- Marshall, W. L., & Mazzucco, A. (1995). Self-esteem and parental attachments in child molesters. *Sexual Abuse: A Journal of Research and Treatment*, *7*, 279–285.
- Nunes, K. L., Babchishin, K. M., & Cortoni, F. (2011). Measuring treatment change in sex offenders: Clinical and statistical significance. *Criminal Justice and Behavior*, *38*, 157–173.
- Ogloff, J. D., Wong, S. C., & Greenwood, A. (1990). Treating criminal psychopaths in a therapeutic community program. *Behavioral Sciences and the Law*, *8*, 181–190.
- Olver, M. E. (2016). Treatment of psychopathic offenders: Evidence, issues, and controversies. *Journal of Community Safety and Well-Being*, *1*, 75–82.
- Olver, M. E., Nicholaichuk, T. P., & Wong, S. C. (2014). The predictive and convergent validity of a psychometric battery used to assess sexual offenders in a treatment programme: An 18-year follow-up. *Journal of Sexual Aggression*, *20*, 216–239.
- Olver, M. E., Stockdale, K. C., & Wormith, J. S. (2011). A meta-analysis of predictors of offender treatment attrition and its relationship to recidivism. *Journal of Consulting and Clinical Psychology*, *79*, 6–21.
- Olver, M. E., & Wong, S. C. (2006). Psychopathy, sexual deviance, and recidivism among sex offenders. *Sexual Abuse: A Journal of Research and Treatment*, *18*, 65–82.
- Olver, M. E., & Wong, S. C. (2009). Therapeutic responses of psychopathic sexual offenders: Treatment attrition, therapeutic change, and long-term recidivism. *Journal of Consulting and Clinical Psychology*, *77*, 328–336.
- Olver, M. E., & Wong, S. C. (2011). Predictors of sex offender treatment dropout: Psychopathy, sex offender risk, and responsivity implications. *Psychology, Crime & Law*, *17*, 457–471.
- Olver, M. E., Wong, S. C., Nicholaichuk, T., & Gordon, A. (2007). The validity and reliability of the Violence Risk Scale-Sexual Offender version: Assessing sex offender risk and evaluating therapeutic change. *Psychological Assessment*, *19*, 318–329.
- Parton, F., & Day, A. (2002). Empathy, intimacy, loneliness and locus of control in child sex offenders: A comparison between familial and non-familial child sexual offenders. *Journal of Child Sexual Abuse*, *11*, 41–57.

- Porter, S., Fairweather, D., Drugge, J., Hervé, H., Birt, A., & Boer, D. P. (2000). Profiles of psychopathy in incarcerated sexual offenders. *Criminal Justice and Behavior*, 27, 216–233.
- Rice, M. E., & Harris, G. T. (2005). Comparing effect sizes in follow-up studies: ROC Area, Cohen's d, and r. *Law and Human Behavior*, 29, 615–620.
- Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied*, 80, 1–28.
- Salekin, R. T. (2002). Psychopathy and therapeutic pessimism: Clinical lore or clinical reality? *Clinical Psychology Review*, 22, 79–112.
- Salekin, R. T., Rogers, R., & Sewell, K. W. (1996). A review and meta-analysis of the Psychopathy Checklist and Psychopathy Checklist—Revised: Predictive validity of dangerousness. *Clinical Psychology: Science and Practice*, 3, 203–215.
- Salekin, R., Worley, C. & Grimes, R. (2010). Treatment of psychopathy: A review and brief introduction to the mental model approach for psychopathy. *Behavioral Sciences and the Law*, 28, 235–266.
- Sewall, L. A., & Olver, M. E. (2019). Psychopathy and treatment outcome: Results from a sexual violence reduction program. *Personality Disorders: Theory, Research, and Treatment*, 10, 59–69.
- Simourd, D. J., & Hoge, R. (2000). Criminal psychopathy: A risk-need perspective. *Criminal Justice and Behavior*, 27, 256–272.
- Speilberger, C. D. (1988). *Manual for the State-Trait Anger Expression Inventory (STAXI)*. Odessa, FL: Psychological Assessment Resources.
- Suedfeld, P., & Landon, P. B. (1978). Approaches to treatment. In R.D. Hare & D. Schalling (Eds.), *Psychopathic behavior: Approaches to research* (pp. 347–376). Chichester: John Sright and Sons Ltd.
- Swartz, D. (1990). Comparative study of sexual knowledge among hearing and hearing impaired college freshmen (Unpublished Undergraduate Thesis). Gallaudet University, Washington, DC.
- Thornton, D. (2002). Constructing and testing a framework for dynamic risk assessment. *Sexual Abuse: A Journal of Research and Treatment*, 14, 139–153.

- Thornton, D., & Knight, R. A. (2015). Construction and validation of SRA-FV need assessment. *Sexual Abuse, 27*, 360-375.
- Watson, D., & Friend, R. (1969). Measurement of social-evaluative anxiety. *Journal of Consulting and Clinical Psychology, 33*, 448-457.
- Wong, S. C. (1984). *The criminal and institutional behaviors of psychopaths* (User Report No. 1984-87). Ottawa, ON: Ministry of the Solicitor General of Canada.
- Wong, S. C. (2015). Treatment of violence prone individuals with psychopathic personality traits. In J. Livesley, G. Dimaggio, & J. Clarkin (Eds.), *Integrated treatment of personality disorder: A modular approach* (pp. 345-376). New York, NY: Guilford Press.
- Wong, S. C., Gordon, A., Gu, D., Lewis, K., & Olver, M. E. (2012). The effectiveness of violence reduction treatment for psychopathic offenders: Empirical evidence and a treatment model. *International Journal of Forensic Mental Health, 11*, 336-349.
- Wong, S. C., Olver, M. E., Nicholaichuk, T. P., & Gordon, A. (2003). *The Violence Risk Scale: Sexual Offender version (VRS-SO)*. Saskatoon, SK: Regional Psychiatric Centre and University of Saskatchewan.
- Yang, M., Wong, S. C., & Coid, J. (2010). The efficacy of violence prediction: A meta-analytic comparison of nine risk assessment tools. *Psychological Bulletin, 136*, 740-767.
- Zemore, R., & Bretell, D. (1983). Depression-proneness, low self-esteem, unhappy outlook, and narcissistic vulnerability. *Psychological Reports, 52*, 223-230.

Table 2.1

Pre- and Post-Treatment Comparisons on Self-Report Measures

Measure	Mean (standard deviation)		Mean (standard deviation)		<i>n</i>	Change	<i>d</i> change
	<i>n</i>	Pre-treatment	<i>n</i>	Post-treatment			
Depression Proneness	127	61.90 (22.26)	114	50.98 (20.64)	111	11.43 (23.66)	0.51***
Fear of Negative Evaluation	135	16.62 (9.84)	117	9.76 (7.31)	115	6.81 (10.51)	0.79***
Social Avoidance and Distress	134	12.92 (8.40)	119	7.26 (7.64)	116	5.91 (7.99)	0.70***
Social Skills Survey	134	115.24 (27.53)	119	135.25 (22.54)	118	-19.92 (28.50)	-0.80***
Social Self-Esteem Inventory	136	112.81 (26.57)	120	131.78 (25.72)	118	-18.84 (24.46)	-0.73***
Perceived Stress Scale	193	23.99 (7.91)	160	17.59 (7.80)	157	6.26 (9.22)	0.81***
Locus of Control Behavior Scale	174	24.79 (10.94)	142	17.55 (9.22)	140	6.94 (9.42)	0.72***
Rotter Internal-External	203	7.79 (3.97)	168	5.68 (3.94)	167	2.15 (4.06)	0.53***
Rape Myth Acceptance	206	39.50 (16.19)	169	28.07 (10.05)	168	11.29 (13.03)	0.85***
Adversarial Sexual Beliefs	206	25.50 (9.19)	169	19.18 (7.53)	168	6.46 (8.86)	0.75***
Acceptance of Interpersonal Violence	205	14.53 (6.53)	169	11.12 (5.26)	168	3.54 (6.31)	0.58***
Sex Knowledge Inventory	199	89.31 (16.33)	169	99.50 (11.50)	164	-10.60 (17.63)	-0.72***
Hostility Toward Women	195	10.06 (6.71)	162	5.96 (5.20)	157	4.13 (6.53)	0.68***
Buss-Durkee							
Total	204	31.12 (10.99)	170	25.42 (10.54)	167	5.92 (11.12)	0.53***
Assault	204	3.80 (2.35)	171	2.90 (2.15)	168	0.89 (2.10)	0.40***
Indirect	203	5.05 (2.19)	171	4.33 (2.28)	168	0.77 (2.36)	0.32***
Irritability	204	4.61 (2.26)	171	3.55 (2.29)	168	1.05 (2.58)	0.47***
Negativism	204	3.02 (1.51)	170	2.35 (1.63)	167	0.75 (1.84)	0.43***
Resentment	204	3.40 (2.11)	171	2.13 (1.84)	168	1.28 (2.15)	0.64***
Suspicion	204	4.55 (2.55)	171	3.13 (2.34)	168	1.42 (2.77)	0.58***
Verbal	204	6.85 (2.78)	171	6.97 (2.34)	168	-.08 (2.79)	0.05
Guilt	204	5.14 (2.13)	170	4.07 (1.93)	167	0.98 (2.16)	0.53***
Speilberger State-Trait Anger Scale	203	18.99 (5.94)	167	15.93 (4.65)	166	3.17 (5.69)	0.57***

Note: *** $p \leq .001$, ** $p \leq .01$, * $p < .05$. Change values represent pre-treatment minus post-treatment scores. The *d* denotes the magnitude of difference between scores at pre- versus posttreatment in standard deviation units.

Table 2.2Associations (Pearson's *r*) Between PCL-R and Pre- and Post-Treatment Self-Report Scores

Self-Report Measure	PCL-R score						
	Interpersonal	Affective	Lifestyle	Antisocial	Factor 1	Factor 2	Total
Depression Proneness							
Pre-treatment	.01	.03	-.02	-.04	.02	-.04	-.04
Post-treatment	.03	-.02	.03	.02	.01	.03	.01
Fear of Negative Evaluation							
Pre-treatment	-.11	-.05	.02	.05	-.09	.04	-.04
Post-treatment	.21*	.18	.13	.11	.22*	.14	.18
Social Avoidance and Distress							
Pre-treatment	-.14	-.02	.08	.05	-.08	.08	-.01
Post-treatment	.02	.11	.21*	.03	.08	.14	.10
Social Skills Survey							
Pre-treatment	.05	.01	.02	-.04	.03	-.02	.02
Post-treatment	-.17	-.07	-.13	-.03	-.13	-.09	-.10
Social Self-Esteem Inventory							
Pre-treatment	.17*	.01	-.10	-.04	.10	-.08	.01
Post-treatment	-.05	-.07	-.08	-.09	-.07	-.10	-.07
Perceived Stress Scale							
Pre-treatment	.15*	.16*	.27***	.19**	.17*	.25***	.24***
Post-treatment	.20*	.14	.16*	.04	.19*	.11	.16*
Locus of Control							
Pre-treatment	.04	.11	.26***	.11	.09	.20**	.17*
Post-treatment	-.03	.16	.17*	.08	.08	.14	.12
Rotter							
Pre-treatment	-.03	.06	.16*	.07	.02	.13	.07
Post-treatment	-.04	.05	.10	.11	.01	.11	.06
Rape Myth Acceptance							
Pre-treatment	.05	.20**	.16*	.03	.15*	.10	.14
Post-treatment	-.07	.12	.01	-.07	.04	-.04	-.01
Adversarial Sexual Beliefs							
Pre-treatment	.12	.20**	.16*	.04	.18**	.11	.15*
Post-treatment	-.02	.18*	.08	-.14	.10	-.04	.03

Acceptance of Interpersonal Violence								
Pre-treatment	-.05	.11	.12	-.02	.04	.06	.05	
Post-treatment	-.02	.10	-.01	-.10	.05	-.06	-.02	
Sex Knowledge Inventory								
Pre-treatment	-.14	-.12	-.18**	-.18*	-.14*	-.20**	-.20**	
Post-treatment	.11	.03	-.09	-.06	.08	-.08	-.02	
Hostility Toward Women								
Pre-treatment	.18*	.22**	.28***	.22**	.23**	.28***	.29***	
Post-treatment	.14	.22**	.26***	.14	.21**	.22**	.24**	
Buss-Durkee (BD) Total								
Pre-treatment	.15*	.20**	.30***	.33***	.19**	.35***	.32***	
Post-treatment	.11	.21**	.21**	.08	.17*	.16*	.19*	
BD Assault								
Pre-treatment	.10	.18*	.28***	.36***	.16*	.35***	.32***	
Post-treatment	.00	.18*	.24**	.15	.11	.21**	.20**	
BD Indirect								
Pre-treatment	.01	-.01	.03	.13	.00	.09	.06	
Post-treatment	-.01	-.05	.03	-.03	-.04	.00	-.03	
BD Irritability								
Pre-treatment	.20*	.21**	.30***	.23**	.23***	.29***	.30***	
Post-treatment	.15	.20*	.21**	.04	.20*	.14	.18*	
BD Negativism								
Pre-treatment	.08	.07	.14*	.13	.08	.15*	.12	
Post-treatment	.07	.12	.10	.02	.11	.07	.09	
BD Resentment								
Pre-treatment	.15*	.25***	.30***	.27***	.23**	.32***	.31***	
Post-treatment	.10	.14	.16*	.03	.13	.11	.13	
BD Suspicion								
Pre-treatment	.14*	.20**	.25***	.20**	.20**	.25***	.25***	
Post-treatment	.12	.21**	.19*	.10	.19*	.16*	.20**	
BD Verbal								
Pre-treatment	.12	.12	.15*	.27***	.14	.24***	.24**	
Post-treatment	.17*	.21**	.18*	.15	.21**	.19*	.23**	
BD Guilt								
Pre-treatment	-.05	-.02	-.00	-.01	-.04	-.01	-.03	
Post-treatment	-.06	-.01	.13	.02	-.03	.08	.04	
Speilberger State-Trait Anger Inventory								
Pre-treatment	.17*	.24**	.30***	.26***	.23***	.31***	.30***	
Post-treatment	.16*	.17*	.31***	.12	.18*	.23**	.24**	

Note: *** $p \leq .001$, ** $p \leq .01$, * $p < .05$. $N_s = 114 - 204$. PCL-R = Psychopathy Checklist-Revised. Rotter = Rotter Internal-External Locus of Control.

Table 2.3Associations (Pearson's *r*) Between Residual PCL-R Scores and Self-Report Treatment Change Scores

Self-Report Measure	PCL-R score						
	Interpersonal	Affective	Lifestyle	Antisocial	Factor 1	Factor 2	Total
Depression Proneness	-.07	.07	-.04	-.04	.01	-.07	-.06
Fear of Negative Evaluation	-.13	-.08	-.06	.01	-.22*	-.05	-.21*
Social Avoidance and Distress	.03	-.07	-.21*	.14	-.08	-.08	-.12
Social Skills	-.16	.03	-.15	.10	-.13	-.05	-.13
Social Self-Esteem Inventory	-.13	-.03	.04	-.06	-.15	-.02	-.12
Perceived Stress	-.13	-.01	-.09	.09	-.14	.01	-.11
Locus of Control Behaviour	.17*	-.19*	.02	.01	-.03	.00	-.01
Rotter	.06	-.06	.03	-.07	.01	-.05	-.04
Rape Myth	.16*	-.12	.05	.09	.02	.11	.12
Adversarial Sexual Beliefs	.19*	-.20*	-.10	.24**	-.05	.10	.05
Acceptance of Interpersonal Violence	.05	-.10	.05	.09	-.06	.12	.07
Sex Knowledge	-.03	-.01	.08	.11	-.04	.19*	.15
Hostility Toward Women	-.01	-.06	-.15	.08	-.08	-.07	-.13
Buss-Durkee Total	.03	-.13	-.13	.21**	-.14	.07	-.06
Assault	.14	-.14	-.14	.18*	-.03	.02	-.01
Indirect	-.02	.06	-.09	.12	.02	.03	.05
Irritability	-.01	-.11	-.13	.16*	-.15	.02	-.10
Negativism	.03	-.11	-.07	.10	-.10	.02	-.06
Resentment	-.04	-.02	-.10	.16*	-.07	.06	-.00
Suspicion	.01	-.11	-.10	.08	-.12	-.03	-.13
Verbal	-.05	-.12	-.08	.07	-.18*	-.02	-.16*
Guilt	.06	.01	-.21**	.08	.05	-.12	.08
Speilberger State-Trait Anger	-.05	.03	-.25**	.17*	-.04	-.08	-.10

Note: *** $p \leq .001$, ** $p \leq .01$, * $p < .05$. $N_s = 111 - 168$. PCL-R = Psychopathy Checklist-Revised. With the exception of the total score, the PCL-R scores used in these associations are residual scores, allowing for the examination of associations between each factor and facet with change while controlling for the other factor and facets. Similarly, treatment change scores are also residual scores, allowing for statistical control of the pre-treatment score.

Table 2.4

Predictive Accuracy of Pre-Treatment and Post-Treatment Self-Report Measures for Sexual, Violent, and General Recidivism

Measure	Sexual recidivism						Violent recidivism						General recidivism					
	5-year		10-year		Overall		5-year		10-year		Overall		5-year		10-year		Overall	
	AUC	95%CI	AUC	95%CI	AUC	95%CI	AUC	95%CI	AUC	95%CI	AUC	95%CI	AUC	95%CI	AUC	95%CI	AUC	95%CI
Depression																		
Proneness																		
Pre-treatment	.46	.31, .61	.50	.37,.63	.53	.41,.64	.42	.31,.54	.43	.32,.53	.48	.37,.59	.47	.36,.57	.50	.38,.62	.46	.32,.59
Post-treatment	.54	.40, .68	.58	.45,.71	.55	.44,.67	.48	.37,.59	.56	.45,.66	.57	.46,.68	.54	.42,.65	.59	.47,.71	.50	.37,.63
Fear of Negative Evaluation																		
Pre-treatment	.52	.38, .67	.53	.40,.66	.52	.41,.64	.47	.36,.58	.49	.38,.59	.44	.33,.54	.42	.32,.53	.44	.33,.56	.40	.28,.53
Post-treatment	.49	.33, .64	.45	.31,.59	.50	.38,.62	.48	.36,.60	.46	.35,.57	.47	.36,.57	.50	.39,.61	.44	.33,.55	.43	.31,.54
Social Avoidance and Distress																		
Pre-treatment	.42	.30, .55	.48	.37,.60	.54	.43,.66	.41	.30,.52	.43	.32,.53	.43	.33,.54	.38	.28,.48	.42	.31,.54	.37*	.25,.49
Post-treatment	.48	.33, .63	.47	.34,.60	.55	.43,.67	.48	.36,.60	.47	.37,.58	.51	.40,.62	.49	.38,.59	.48	.37,.60	.47	.35,.60
Social Skills Survey																		
Pre-treatment	.50	.37, .63	.51	.39,.62	.56	.45,.67	.51	.40,.61	.50	.39,.61	.52	.41,.62	.54	.43,.65	.48	.36,.60	.48	.35,.61
Post-treatment	.51	.37, .65	.52	.39,.64	.60	.48,.71	.57	.45,.68	.56	.46,.67	.60	.49,.70	.59	.49,.69	.57	.46,.67	.57	.46,.68
Social Self-Esteem Inventory																		
Pre-treatment	.39	.27, .52	.44	.32,.56	.52	.41,.64	.41	.30,.52	.43	.32,.53	.46	.36,.57	.46	.35,.56	.46	.34,.58	.41	.28,.53
Post-treatment	.52	.38, .66	.54	.42,.66	.62	.51,.73	.53	.41,.64	.54	.43,.64	.57	.46,.67	.53	.43,.64	.49	.38,.60	.43	.31,.54
Perceived Stress Scale																		
Pre-treatment	.59	.48, .70	.61	.51,.71	.64**	.54,.73	.57	.48,.66	.61*	.52,.70	.60*	.50,.69	.53	.43,.62	.51	.41,.61	.46	.36,.57
Post-treatment	.43	.31, .55	.41	.30,.51	.45	.35,.54	.50	.41,.60	.54	.45,.64	.54	.45,.63	.51	.42,.60	.47	.38,.57	.44	.34,.54
Rape Myth Acceptance																		
Pre-treatment	.51	.40, .62	.49	.39,.59	.50	.41,.60	.56	.47,.65	.58	.50,.67	.55	.46,.63	.56	.47,.65	.61*	.52,.71	.56	.46,.67
Post-treatment	.54	.43, .66	.50	.39,.60	.52	.43,.62	.48	.49,.67	.55	.47,.64	.54	.45,.63	.52	.43,.61	.58	.48,.67	.55	.45,.65

Adversarial Sexual Beliefs																			
Pre-treatment	.51	.39, .63	.49	.38, .60	.52	.42, .62	.53	.44, .63	.55	.46, .64	.51	.42, .59	.50	.42, .59	.53	.44, .62	.50	.40, .60	
Post-treatment	.53	.40, .65	.52	.41, .63	.52	.42, .63	.55	.46, .65	.57	.48, .66	.57	.48, .65	.53	.44, .62	.52	.43, .62	.51	.41, .61	
Acceptance of Interpersonal Violence																			
Pre-treatment	.55	.44, .66	.54	.44, .64	.56	.47, .66	.50	.41, .60	.53	.44, .62	.50	.41, .58	.52	.43, .61	.56	.46, .65	.51	.41, .61	
Post-treatment	.51	.40, .63	.51	.40, .61	.54	.44, .64	.56	.46, .65	.53	.44, .62	.50	.41, .59	.53	.44, .62	.56	.46, .65	.55	.46, .64	
Sex Knowledge Inventory																			
Pre-treatment	.47	.35, .58	.48	.37, .58	.53	.43, .63	.55	.45, .64	.51	.42, .60	.53	.45, .52	.55	.46, .64	.53	.44, .63	.55	.44, .65	
Post-treatment	.49	.37, .61	.54	.44, .65	.58	.48, .67	.56	.47, .66	.55	.46, .64	.59*	.50, .68	.55	.47, .64	.58	.48, .67	.59	.49, .70	
Hostility Toward Women																			
Pre-treatment	.51	.39, .64	.53	.42, .64	.56	.45, .66	.54	.45, .64	.58	.49, .67	.54	.45, .63	.53	.44, .62	.57	.48, .66	.49	.39, .59	
Post-treatment	.50	.38, .62	.51	.40, .62	.54	.44, .64	.54	.44, .63	.58	.49, .68	.58	.48, .66	.53	.44, .62	.49	.39, .59	.50	.40, .60	
Locus of Control																			
Pre-treatment	.50	.36, .64	.54	.42, .66	.61	.49, .72	.56	.44, .67	.65**	.55, .74	.64**	.55, .73	.57	.47, .66	.60	.51, .69	.56	.46, .65	
Post-treatment	.46	.33, .58	.46	.35, .58	.49	.38, .60	.53	.42, .64	.59	.49, .69	.57	.47, .66	.53	.43, .62	.56	.46, .66	.49	.39, .60	
Rotter																			
Pre-treatment	.46	.35, .57	.42	.32, .52	.50	.40, .60	.51	.41, .60	.51	.42, .60	.50	.41, .58	.47	.38, .56	.48	.39, .57	.48	.38, .57	
Post-treatment	.48	.37, .59	.47	.37, .57	.49	.40, .59	.55	.45, .64	.58	.49, .66	.55	.46, .63	.52	.43, .61	.54	.44, .63	.53	.44, .63	
Buss-Durkee (BD) Total																			
Pre-treatment	.51	.40, .63	.49	.38, .60	.52	.42, .62	.57	.47, .66	.62**	.53, .71	.59*	.51, .68	.57	.49, .66	.58	.50, .67	.55	.45, .64	
Post-treatment	.51	.39, .62	.48	.38, .58	.53	.43, .63	.58	.49, .68	.61*	.52, .69	.60*	.52, .69	.56	.48, .65	.54	.44, .63	.50	.40, .60	
BD Assault																			
Pre-treatment	.50	.38, .61	.47	.36, .57	.49	.39, .59	.57	.48, .66	.61**	.53, .70	.64**	.55, .72	.58	.49, .67	.64**	.55, .72	.62*	.53, .71	
Post-treatment	.56	.45, .67	.55	.45, .65	.60	.50, .69	.64**	.55, .73	.65**	.57, .73	.68***	.60, .76	.63**	.55, .72	.66**	.57, .75	.62*	.53, .71	
BD Indirect																			
Pre-treatment	.46	.35, .57	.45	.34, .55	.42	.33, .52	.47	.38, .56	.50	.41, .59	.49	.40, .58	.48	.39, .57	.45	.35, .54	.45	.34, .56	
Post-treatment	.39*	.29, .48	.39	.30, .49	.43	.34, .53	.48	.40, .57	.52	.43, .61	.54	.45, .63	.52	.43, .61	.46	.37, .56	.46	.35, .57	
BD Irritability																			
Pre-treatment	.54	.43, .66	.52	.42, .62	.56	.46, .66	.56	.47, .65	.62**	.53, .71	.61*	.52, .69	.53	.45, .62	.53	.44, .62	.50	.41, .60	
Post-treatment	.50	.39, .61	.47	.36, .57	.51	.41, .61	.55	.45, .64	.55	.46, .64	.54	.45, .63	.53	.44, .62	.47	.37, .56	.44	.34, .54	

BD Negativism																		
Pre-treatment	.48	.37,.59	.49	.39,.59	.54	.44,.63	.51	.41,.60	.52	.43,.61	.51	.42,.60	.52	.43,.61	.53	.43,.62	.51	.41,.61
Post-treatment	.45	.34,.57	.44	.33,.54	.49	.40,.59	.55	.45,.65	.57	.48,.65	.54	.46,.63	.54	.45,.63	.53	.43,.63	.51	.40,.61
BD Resentment																		
Pre-treatment	.49	.37,.60	.49	.39,.60	.51	.41,.61	.52	.43,.61	.58	.49,.67	.53	.44,.62	.51	.42,.60	.51	.42,.61	.47	.37,.57
Post-treatment	.51	.40,.61	.53	.43,.62	.55	.46,.64	.53	.44,.62	.60*	.51,.68	.58	.49,.66	.51	.43,.60	.50	.41,.60	.48	.37,.58
BD Suspicion																		
Pre-treatment	.51	.38,.64	.50	.39,.62	.52	.41,.62	.55	.44,.64	.59*	.50,.68	.54	.45,.63	.56	.47,.65	.59	.50,.68	.51	.41,.60
Post-treatment	.60	.49,.71	.54	.44,.65	.55	.45,.65	.61*	.52,.70	.60*	.51,.69	.56	.47,.64	.55	.46,.63	.53	.44,.63	.51	.40,.61
BD Verbal																		
Pre-treatment	.53	.41,.65	.49	.38,.59	.51	.40,.61	.61*	.51,.70	.60*	.51,.68	.61*	.52,.69	.62**	.54,.71	.58	.48,.67	.58	.48,.68
Post-treatment	.47	.35,.59	.46	.36,.57	.51	.41,.61	.54	.45,.64	.56	.47,.65	.58	.49,.66	.54	.45,.62	.54	.44,.63	.51	.41,.61
BD Guilt																		
Pre-treatment	.52	.41,.63	.55	.44,.65	.52	.41,.62	.48	.39,.57	.53	.44,.62	.46	.38,.55	.43	.34,.52	.48	.39,.58	.45	.35,.55
Post-treatment	.55	.45,.65	.57	.47,.66	.55	.46,.64	.51	.42,.60	.59	.50,.67	.54	.45,.63	.51	.42,.60	.54	.44,.64	.48	.37,.59
Speilberger State-Trait Anger																		
Pre-treatment	.56	.43,.68	.54	.43,.65	.57	.46,.67	.59	.49,.68	.61*	.52,.70	.58	.49,.67	.57	.49,.66	.61*	.52,.70	.57	.47,.68
Post-treatment	.50	.37,.62	.48	.37,.59	.54	.43,.64	.56	.47,.66	.58	.50,.67	.60*	.51,.68	.56	.47,.65	.54	.45,.63	.52	.42,.61

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. $N_s = 119 - 168$. Rotter = Rotter Internal-External Locus of Control

Table 2.5

Predictive Accuracy of the PCL-R for Sexual, Violent, and General Recidivism

PCL-R Scale	Sexual recidivism						Violent recidivism						General recidivism					
	5-year		10-year		Overall		5-year		10-year		Overall		5-year		10-year		Overall	
	AUC	95%CI	AUC	95%CI	AUC	95%CI	AUC	95%CI	AUC	95%CI	AUC	95%CI	AUC	95%CI	AUC	95%CI	AUC	95%CI
Interpersonal	.61*	.52, .70	.56	.48, .65	.55	.47, .63	.58	.50, .66	.58	.50, .66	.56	.48, .64	.55	.47, .63	.52	.43, .61	.51	.41, .61
Affective	.58	.48, .68	.56	.48, .65	.54	.46, .62	.57	.49, .65	.60*	.52, .68	.59*	.51, .67	.52	.44, .60	.54	.45, .63	.54	.44, .63
Lifestyle	.65**	.55, .74	.62**	.54, .71	.65***	.57, .73	.68***	.61, .76	.70***	.63, .77	.74***	.68, .81	.70***	.62, .77	.70***	.62, .77	.69***	.61, .78
Antisocial	.60*	.50, .70	.62**	.54, .71	.63**	.54, .71	.70***	.62, .77	.70***	.63, .77	.69***	.62, .77	.73***	.66, .80	.71***	.64, .79	.68***	.61, .76
Factor 1	.60*	.51, .70	.57	.49, .66	.55	.46, .63	.58*	.51, .66	.61**	.53, .69	.59*	.51, .67	.53	.45, .61	.53	.44, .62	.53	.43, .62
Factor 2	.64**	.55, .73	.64**	.56, .73	.65**	.57, .73	.71***	.64, .79	.73***	.66, .80	.74***	.67, .81	.73***	.67, .80	.73***	.65, .80	.71***	.63, .79
Total	.64**	.55, .73	.63**	.54, .71	.61**	.53, .69	.68***	.61, .76	.71***	.64, .78	.71***	.64, .78	.66***	.59, .74	.67***	.59, .75	.66**	.57, .75

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. PCL-R = Psychopathy Checklist Revised. $N_s = 206 - 211$.

Table 2.6

Cox Regression Survival Analyses: Associations Between Treatment Change Scores and Recidivism

Measure	Sexual recidivism				Violent recidivism				General recidivism			
	<i>B</i>	<i>SE</i>	<i>P</i>	<i>e^B</i> [95%CI]	<i>B</i>	<i>SE</i>	<i>P</i>	<i>e^B</i> [95%CI]	<i>B</i>	<i>SE</i>	<i>P</i>	<i>e^B</i> [95%CI]
Depression Proneness	-.010	.009	.275	.990 [.973, 1.008]	-.009	.007	.164	.991 [.978, 1.004]	-.004	.006	.480	.996 [.985, 1.007]
Fear of Negative Evaluation	-.004	.025	.872	.996 [.949, 1.046]	-.003	.019	.868	.997 [.960, 1.035]	.004	.016	.789	1.004 [.973, 1.027]
Social Avoidance and Distress	-.037	.026	.150	.964 [.916, 1.013]	-.035	.019	.068	.965 [.929, 1.003]	-.031	.016	.059	.969 [.939, 1.001]
Social Skills	-.006	.007	.357	0.994 [.980, 1.007]	-.007	.005	.200	.993 [.984, 1.003]	-.005	.004	.285	.995 [.987, 1.004]
Social Self-Esteem	-.010	.007	.122	0.990 [.977, 1.003]	-.008	.005	.139	.992 [.982, 1.002]	.001	.005	.838	1.001 [.991, 1.011]
Perceived Stress	.042	.022	.058	1.043 [.999, 1.089]	-.006	.014	.688	.994 [.967, 1.022]	.005	.013	.686	1.005 [.980, 1.031]
Locus of Control Behaviour	.029	.022	.189	1.029 [.986, 1.075]	-.003	.015	.839	.997 [.967, 1.027]	.003	.013	.828	1.003 [.977, 1.029]
Rotter	.008	.041	.837	1.009 [.930, 1.093]	-.041	.028	.149	.960 [.908, 1.015]	-.029	.025	.235	.971 [.925, 1.019]
Rape Myth	.000	.017	.987	1.000 [.967, 1.034]	.005	.013	.672	1.005 [.980, 1.031]	.011	.011	.332	1.011 [.989, 1.034]
Adversarial Sexual Beliefs	-.005	.020	.790	.995 [.956, 1.035]	-.016	.014	.230	.984 [.958, 1.010]	-.001	.012	.910	.999 [.975, 1.023]
Acceptance of Interpersonal Violence	.001	.029	.962	1.001 [.945, 1.061]	-.001	.022	.946	.999 [.957, 1.042]	-.013	.018	.475	.987 [.953, 1.023]
Sex Knowledge	.007	.013	.574	1.007 [.982, 1.033]	.016	.010	.090	1.016 [.997, 1.035]	.012	.008	.118	1.012 [.997, 1.028]
Hostility Toward Women	-.011	.032	.722	.989 [.929, 1.052]	-.049	.024	.039	.952 [.908, .997]	-.009	.021	.658	.991 [.952, 1.032]
Buss-Durkee Total	-.010	.016	.516	.990 [.960, 1.021]	-.023	.012	.047	.977 [.955, 1.000]	-.004	.010	.699	.996 [.977, 1.016]
Assault	-.167	.079	.034	.846 [.724, .988]	-.196	.062	.002	.822 [.727, .929]	-.110	.055	.043	.896 [.805, .997]
Indirect	.038	.072	.595	1.039 [.902, 1.198]	-.046	.052	.377	.955 [.862, 1.058]	.015	.047	.752	1.015 [.926, 1.113]
Irritability	.003	.068	.969	1.003 [.877, 1.146]	-.030	.049	.549	.971 [.881, 1.070]	.022	.042	.594	1.022 [.942, 1.110]
Negativism	.023	.096	.812	1.023 [.848, 1.234]	-.100	.070	.154	.905 [.788, 1.038]	-.039	.059	.512	.962 [.856, 1.081]
Resentment	-.051	.084	.543	.950 [.806, 1.120]	-.096	.062	.119	.908 [.805, 1.025]	-.012	.054	.822	.988 [.890, 1.097]
Suspicion	-.070	.063	.266	.932 [.824, 1.055]	-.078	.047	.096	.925 [.843, 1.014]	-.006	.040	.876	.994 [.919, 1.075]
Verbal	-.001	.070	.991	.999 [.871, 1.146]	-.029	.051	.570	.971 [.878, 1.074]	.002	.044	.611	1.023 [.938, 1.114]
Guilt	-.005	.081	.493	.946 [.808, 1.108]	-.075	.060	.211	.927 [.824, 1.044]	-.011	.050	.824	.989 [.897, 1.090]
Speilberger State-Trait Anger	.028	.036	.442	1.028 [.958, 1.103]	-.019	.028	.503	.982 [.930, 1.036]	.002	.024	.927	1.002 [.956, 1.051]

Note: significant p-values for model predictors in bold font. *Ns* = 111-168. Treatment change scores are residual scores, allowing for statistical control of the pre-treatment score. Rotter = Rotter Internal-External Locus of Control

Table 2.7

Cox Regression Survival Analyses: Associations Between Treatment Change Scores and Recidivism Controlling for PCL-R Score

Regression models 1-3	Sexual recidivism				Violent recidivism				General recidivism			
	<i>B</i>	<i>SE</i>	<i>P</i>	<i>e^B</i> [95%CI]	<i>B</i>	<i>SE</i>	<i>P</i>	<i>e^B</i> [95%CI]	<i>B</i>	<i>SE</i>	<i>P</i>	<i>e^B</i> [95%CI]
Model 1												
PCL-R total	.047	.020	.020	1.048 [1.007, 1.091]	.064	.015	<.001	1.066 [1.036, 1.097]	.048	.012	<.001	1.049 [1.024, 1.075]
Hostility Toward Women change	.002	.031	.952	1.002 [.943, 1.065]	-.028	.023	.217	0.972 [0.929, 1.017]	.002	.020	.940	0.940 [0.963, 1.042]
Model 2												
PCL-R Total	.052	.019	.006	1.053 [1.015, 1.094]	.071	.014	<.001	1.073 [1.044, 1.103]	.050	.012	<.001	1.051 [1.027, 1.076]
Buss-Durkee total score change	-.006	.015	.669	0.994 [0.965, 1.023]	-.018	.011	.087	0.982 [0.961, 1.003]	-.005	.010	.596	0.995 [0.976, 1.014]
Model 3												
PCL-R total	.051	.019	.008	1.052 [1.013, 1.093]	.072	.014	<.001	1.075 [1.045, 1.105]	.050	.012	<.001	1.051 [1.027, 1.076]
Buss-Durkee Assault change	-.147	.076	.053	0.863 [0.743, 1.002]	-.182	.059	.002	0.833 [0.742, 0.936]	-.109	.053	.042	0.897 [0.808, 0.996]

Note: significant p-values for model predictors in bold font. Model 1, *N* = 157; Model 2, *N* = 167; Model 3, *N* = 168. PCL-R = Psychopathy Checklist-Revised. Treatment change scores are residualized, allowing for statistical control of the pre-treatment score. Analyses in these tables were selected according to the results of the Cox Regression Survival Analyses in Table 2.6. Associations that were significant were analyzed further with the addition of the PCL-R to determine whether the scales had incremental validity once controlling for the PCL-R.

CHAPTER 3.
MANUSCRIPT 2

3.1 Abstract

The present study investigated the relationships between psychopathy, changes in general criminal attitudes, and recidivism in a sample of federally incarcerated men who received high intensity treatment programming for sexual offending. Criminal attitudes were measured through self-report using the Criminal Sentiments Scale (CSS), assessed in real time as part of routine service delivery. Study findings revealed overall greater endorsement of criminal attitudes among those higher in psychopathic traits, with the strongest and most consistent associations found between CSS scores and factor 2 (i.e., lifestyle and antisocial) psychopathy traits. While the highest and fastest recidivism rates (violent and general) were observed among individuals high in both psychopathic traits and criminal attitudes, positive treatment change in criminal attitudes was associated with reductions in post-treatment recidivism, particularly for violent outcomes. Positive treatment change remained predictive even after controlling for individual psychopathy scores. The study's findings provide preliminary evidence that self-report assessments of criminal attitudes are risk-relevant and uniquely informative in the treatment of individuals with psychopathic traits.

3.2 An Examination of Psychopathy and Criminal Attitude Change in Sexual Offending

3.2.1 The Relevance of Criminal Attitudes to Criminal Behaviour

Within the correctional and forensic literature, criminal attitudes play a prominent role in our understanding, assessment, and treatment of criminal behaviour. Andrews and Bonta (2010) define attitudes as “evaluative cognitions and feelings that organize the actor’s decision to act and behavior toward a person, thing, or action” (p. 234). Several theories of criminality have been offered to help explain how criminal attitudes develop and manifest within the context of criminal behaviour. One popular theory by Sutherland (1947), the Differential Association Theory, has helped shaped our understanding of the role of social learning in the formation of antisocial attitudes. Specifically, it is through exposure to antisocial peers that an individual develops attitudes, along with values and motives, associated with criminal behaviour. Another theory by Sykes and Matza’s (1957), Techniques of Neutralization, speaks to how criminal attitudes are used to justify one’s behaviour. Notably, individuals engage in different “techniques” (e.g., denial of responsibility, denial of injury) to rationalize or justify criminal behaviour. According to the theory, this thinking can occur prior to any criminal acts and serves to distance oneself from any shame or guilt associated with criminal behaviour. Although these theories were developed over 60 years ago, they continue to have relevance and influence today. For instance, in our understanding of the relationship between antisocial peers and cognitions (i.e., Andrews and Bonta’s (1994, 2010) “Big Four” covariates of criminality, which emphasize the interplay of antisocial peers, personality, behaviour, and attitudes in the origin and maintenance of criminal behaviour), as well as the use of interventions aimed at modifying criminal thinking patterns within correctional treatment programs (Lipsey, Chapman, & Landenberger, 2001).

In the current literature, criminal attitudes are commonly conceptualized as one of the “Central Eight” criminogenic needs under the Risk-Need-Responsivity (RNR) model of offender rehabilitation (Andrews, Bonta, & Wormith, 2011; Bonta & Andrews, 2007). The RNR model is a set of principles that speak to questions of who should be treated (i.e., the Risk principle), what should be treated (i.e., the Need principle), and how treatment should be delivered (i.e., the Responsivity principle). Criminal attitudes have been identified as a criminogenic concern due to their relationship with offending behaviour. Multiple meta-analytic investigations have demonstrated a link between criminal attitudes and recidivism (Cottle, Lee, & Heilbrun, 2001;

Gendreau, Little, & Goggin, 1996; Olver, Stockdale, & Wormith, 2014; Simourd & Andrews, 2014), including among specialized populations such as sexual offenders (Hanson & Morton-Bourgon, 2004; Helmus, Babchishin, & Mann, 2013). The relevance of criminal attitudes is also highlighted within the interventions utilized in corrections, which emphasizes the role of antisocial cognitions in offending behaviour. As per the Responsivity principle (Andrews et al., 2011; Bonta & Andrews, 2007), cognitive-behavioural (i.e., Cognitive Behavioural Therapy (CBT)) based interventions are recommended, as they are well-suited to identify and correct criminogenic thinking patterns and foster prosocial behaviors (Lipsey et al., 2001). Research has demonstrated that CBT-based programs are effective at reducing the likelihood of recidivism among both adult and juvenile offenders (Landenberg & Lipsey, 2005; Lipsey et al., 2001; Pearson, Lipton, Cleland, & Yee, 2002).

As a criminogenic need, it is assumed that criminal attitudes are dynamic, and that positive change reduces the likelihood of criminal behaviour. However, interestingly, despite having a clear link with criminal behaviour, criminal attitudes have not historically received explicit attention in offender assessment (Simourd & Olver, 2002). In fact, there has also been a relative absence of explicit treatment interventions for the modification of criminal attitudes in correctional programming (Simourd, Olver, & Brandenburg, 2016), resulting in cognitive-based programs that address criminal attitudes indirectly through interventions of how individuals think (i.e., processes such as decision-making skills) rather than what they think (i.e., content) (Simourd & Olver, 2002). It has been argued that although attitude process is important, there is stronger theoretical support for an antecedent link between attitude content and behaviour. That is, what a person thinks before they engage in a criminal act (e.g., attitudes, beliefs, values related to their behaviour) has more on influence their behaviour than how a person is thinking (e.g., decision-making processes such as evaluating pros and cons) (Simourd & Olver, 2002). Subsequent research utilizing tools designed to assess criminal attitudes has provided more direct support for the notion that criminal attitudes can change and that this change is risk-relevant (i.e., linked to recidivism). Simourd et al. (2016) found evidence of significant pre-posttreatment decreases in criminal attitudes, as measured by the Criminal Sentiments Scale – Modified (CSS-M), as well as a 7% decrease in recidivism rates for those who completed a Criminal Attitudes Program (CAP), a treatment program designed to directly target criminal attitudes, compared to those who did not. Additionally, Olver, Stockdale, and Simourd (2021) found that changes in

scores on the original version of the Criminal Sentiments Scale (CSS) were associated with decreased general and violent recidivism, controlling for pre-treatment scores and baseline risk. The most consistent associations were observed with the CSS's subscales measuring identification with criminal peers (i.e., the Identification of Criminal Others (ICO) subscale) and tolerance of law violations (i.e., the Tolerance toward Law Violations (TLV) subscale). Changes on these scales emerged as predictive of violent recidivism even after controlling for static and dynamic measures of sexual violence risk. It has been noted that the TLV subscale is consistent with Sykes and Matza's (1957) Techniques of Neutrality theory in that scale content reflects justification for criminal behaviour.

3.2.2 Criminal Attitudes in Sexual Offending

The present study features a sample of incarcerated men with histories of sexual offending. Although the bulk of criminal attitude research has focused on undifferentiated correctional populations, there has been some knowledge developed for sexual offending specifically. Notably, meta-analytic research suggests that criminal attitudes are modestly associated with sexual recidivism (Hanson & Morton-Bourgon, 2004; Helmus et al., 2013) and CBT-based programs are the most effective approach for reducing recidivism among individuals who have sexually offended (Lösel & Schmucker, 2005). Many theories of sexual offending feature cognitive explanations for sexual offending behaviour and these theories have subsequently informed the development of measures designed to assess sexual offending specific attitudes. Popular instruments include the Abel-Becker Cognitions scale (Abel et al., 1989), Bumby RAPE and MOLEST scales (Bumby, 1996), and Hanson's Sex with Children scale (Hanson, Gizzarelli, & Scott, 1994). An important empirical question is whether general or sexual offence specific attitudes are linked to offending behaviour. The existing research suggests that they are both important. Of note, the predictive effects of criminal attitudes observed in the Helmus et al. (2013) meta-analysis focused on sexual offending specific attitudes (e.g., endorsement of rape myths, legitimization of sexual contact between adults and children). The Olver et al. (2021) study utilized a sample of men with sexual offending histories and demonstrated a predictive relationship between self-reported general criminal attitudes and general and violent recidivism, however, no significant relationships emerged with the sexual recidivism outcomes. Other meta-analytic research has demonstrated an association between general criminal attitudes, as measured by a domain on the Level of Service Inventory (LSI) (i.e.,

a general risk-need assessment tool), and general, violent, and sexual recidivism, albeit the general and violent recidivism associations were comparatively stronger than that observed with sexual recidivism (Olver et al., 2014). Taken together, these findings suggest that both general and sexual offending specific attitudes predict recidivism among individuals who have sexually offended, however, sexual offence specific attitudes appear to predict sexual recidivism better than general attitudes, and general attitudes appear to predict general and violent recidivism better than sexual recidivism.

3.2.3 Criminal Attitudes in Psychopathy

There is theoretical and empirical evidence to suggest we should be particularly concerned about criminal attitudes within individuals with psychopathy, a personality disorder characterized by a constellation of affective (e.g., callous, lack of empathy), interpersonal (e.g., grandiose, manipulative), and behavioural (e.g., parasitic, irresponsible, impulsive) characteristics. Although the base rates of psychopathy are relatively low within the general population (i.e., approximately 1%), the characteristics of psychopathy lend themselves well to an antisocial orientation and lifestyle of crime, resulting in base rates of 15 to 25% within correctional populations (Hare, 1996; Wong, 1984). Theoretically, criminal attitudes are consistent with the construct of psychopathy. Individuals with psychopathy tend to be concerned with their own instrumental gain, often at the expense of well-being and welfare of others. Their failure to take responsibility and general lack of empathy and guilt allows them to engage in a diverse pattern of criminal behaviour while feeling justified in their behaviours and unconcerned with how it affects others. In research comparing incarcerated men high in psychopathic traits (i.e., a Psychopathy Checklist – Revised (PCL-R) score of 30 and greater) to those low in psychopathic traits (i.e., PCL-R score under 30), Simourd & Hoge (2000) demonstrated that high scorers had significantly greater areas of criminogenic concern, including criminal attitudes. In their study, criminal attitudes were examined using both clinician-rated (i.e., the antisocial attitude / orientation domain of the Level of Service Inventory – Revised (LSI-R)) and two self-report (i.e., the Pride in Delinquency Scale (PID), a measure of pride vs. shame about involving oneself in specific criminal behaviour, and the CSS-M) measures. The researchers found a statistically significant differences in the LSI-R attitude / orientation domain between the two groups, a difference that corresponds to a magnitude of moderate effect size (*Cohen's d* = 0.54). Those with higher psychopathic traits also demonstrated significantly higher total criminal

attitudes and attitudes specific to tolerance for law violations, as measured by the CSS-M, as well as less shame and more pride about specific criminal behaviours, as measured by the PID. The differences corresponded to effect sizes that were small-to-moderate in magnitude (i.e., $d_s = 0.35 - 0.59$). This study provides evidence of increased criminal attitudes among individuals with more psychopathic traits relative to their less psychopathic counterparts.

3.2.4 Psychopathy and Treatment

In general, individuals high in psychopathic traits are of increased concern from an offender rehabilitation perspective. Psychopathy is associated with increased rates of recidivism (Hanson & Morton-Bourgon, 2005; Hawes, Boccaccini, & Murrie, 2013; Leistico, Salekin, DeCoster, & Rogers, 2008; Salekin, Rogers, & Sewell, 1996), greater criminogenic need (Simourd & Hoge, 2000), and various treatment-interfering characteristics (e.g., treatment drop-out and non-completion, poor motivation, and weaker therapeutic alliances; DeSorcy, Olver, & Wormith, 2020; Ogloff, Wong, & Greenwood, 1990; Olver, Stockdale, & Wormith, 2011; Sewall & Olver, 2019). Historically, the question of whether individuals with psychopathy are amenable to treatment has been one filled with controversy and pessimism (Salekin, 2002). Early research suggested that treatment is ineffective and worse, has the potential to increase the likelihood of recidivism (Harris & Rice, 2006), while more recent research has suggested that these conclusions are unfounded and based on poorly designed treatment studies featuring inappropriate treatment targets (i.e., not criminogenic and unrelated to theories of crimes) and treatment programs not supported under an RNR approach (i.e., not CBT-based) (Salekin, 2002; Olver, 2016). More recent thinking has offered a multifaceted approach to treatment with psychopathy whereby the antisocial and lifestyle aspects of the disorder are the focus of interventions, and the affective and interpersonal characteristics are responsivity issues that need to be addressed and managed for interventions to be effective (i.e., Wong's two-component Model, Wong, 2015; Wong, Gordon, Gu, Lewis, & Olver, 2012). Examinations of programs grounded in RNR principles has demonstrated encouraging evidence of lowered posttreatment risk scores (Looman, Abracen, Serin, & Marquis, 2005; Olver & Wong, 2009), reductions in rates and seriousness of sexual and violent recidivism (Olver & Wong, 2009; Wong et al., 2012), and increased latency in reoffending behaviour (Langton, Barbaree, Harkins, & Peacock, 2006) among individual high in psychopathic traits.

3.2.5 Current Study

The present study is a novel examination of psychopathy and criminal attitude change using a self-report measure of general criminal attitudes administered in real time over several years of operation of a high-intensity sexual offending treatment program. To the best of author's knowledge, there have been no pre-post-treatment investigations of psychopathy and self-reported criminal attitudes. Thus, little is known about whether criminal attitudes can change following treatment with this population, and whether treatment corresponds to changes in recidivism rates. The present study is an extension of the research by Olver et al. (2021) and utilizes overlapping samples. The results of this study served to replicate and expand on the literature's understanding of the relationships between the modification of general criminal attitudes and sexual offending risk and recidivism. The present study intends to expand upon these findings with a focus on the associations on general criminal attitudes and psychopathy. Specifically, this study intends to (1) examine the association of criminal attitudes, measured psychometrically via self-report, to psychopathy; (2) examine to what extent the features of psychopathy are associated with changes in criminal attitudes; and (3) examine to what extent changes in criminal attitudes are associated with reductions in post program recidivism in the community controlling for individual differences in psychopathy.

3.2.6 Method

3.2.6.1 Sample

The study's data were obtained archivally from the Regional Psychiatric Centre (RPC), a maximum-security forensic psychiatric facility located in Saskatoon, Saskatchewan. Participants included 281 federally-sentenced males who attended the a high-intensity treatment program for sexual offending (the Clearwater Program) between the years of 1983 and 2009. All participants had a current or prior conviction for a sexual offence and were serving a mean sentence length of 5.80 years ($SD = 3.60$). Approximately two-thirds (62.40%) of the sample had at least 1 prior conviction for a sexual offence, with 41.10% having 2 or more prior convictions for a sexual offence. Approximately two-thirds of the sample had at least one adult victim (63.80%), while the remainder had exclusively child victims under the age of 14 years (36.20%).

The sample was, on average, 35.11 years old ($SD = 10.32$) and had 9.59 years ($SD = 2.77$) of education. The majority of participants were of White (59.30%) and Indigenous (38.90%) ancestry. Almost one-third of the sample had never been married (31.10%), while

28.60% were divorced or separated, 18.60% were previously common-law, 0.6% were widowed, and almost one-quarter (21.10%) were currently married or common-law. The diagnostic information available indicated that 19.30% had a major mental disorder (e.g., mood, psychotic, or anxiety disorder), 61.40% any substance use disorder, 51.20% antisocial personality disorder (ASPD), 70.70% any personality disorder, and 34.60% were diagnosed with any paraphilia.

3.2.6.2 Treatment Program

The Clearwater Program was a cognitive behavioural therapy (CBT)-based program intended to reduce the likelihood of sexual violence. The program began in 1983 and was developed to provide services to high-risk and high-need federally-sentenced men convicted of a sexual offence. This was most often a contact sexual offence. The program was approximately 8-months in duration and the content had evolved over time in keeping with best practices in the sexual offending treatment literature and more specifically, “what works” under the RNR framework. Participants were referred to the program on the basis that they were deemed at high risk of sexual violence or presented with personal characteristics that warranted formal programming (e.g., psychological concerns such as substance abuse, antisocial personality, or paraphilias). The program provided a combination of individual and group services designed to target areas of concerns related to sexual offending (i.e., criminogenic needs and other psychological constructs related to sexual offending). Areas covered include sexual self-regulation, intimacy concerns, problems in relationships, attitudes supportive of offending behaviour, emotion regulation, healthy sexuality, inappropriate sexual interests, and relapse prevention. The program was staffed by a multidisciplinary team including psychiatric nurses, occupational therapists, psychologists, social workers, psychiatrists, parole officers, and correctional officers. Individual and group services were typically provided by psychiatric nurses. Given the overrepresentation of Indigenous offenders within the Canadian corrections system, Indigenous Elders also played prominent treatment and consultation roles in the program, as well as providing cultural services (e.g., sweat lodges, smudging).

3.2.6.3 Measures

3.2.6.3.1 Psychopathy Checklist – Revised (PCL-R)

The PCL-R is a 20-item symptom construct rating scale designed to assess psychopathy (Hare, 1991, 2003). The items that comprise the tool reflect both personality and behavioral traits of psychopathy and are scored on a 3-point scale: 0 (*Absent*), 1 (*Partially present*), and 2

(*Present*). Individual items are summed to yield a total score, as well as facet and factor scores. The PCL-R can be broken down into two factors and four facets. Factor 1 refers to the interpersonal and affective characteristics of psychopathy (e.g., glibness, remorseless, callousness) and is subdivided into Interpersonal and Affective facet. Factor 2 measures the chronic antisocial lifestyle aspects of psychopathy and is subdivided into lifestyle and antisocial facets. In clinical use, a score of 30 is typically used as the cut-off to indicate someone has psychopathy. In research, which typically uses archival data to score the tool, a cut-off of 25 has been recommended as archival data tends to underestimate interpersonal and affective features (Olver, 2016). The results of numerous studies indicate that the PCL-R has well-established reliability and validity (Hare, 2003). Notably, while the instrument was not intended to predict criminal behavior, factor 2 and the lifestyle and antisocial facets of the PCL-R have demonstrated predictive efficacy in their prediction of recidivistic outcomes (Yang, Wong, & Coid, 2010).

3.2.6.3.2 Criminal Sentiments Scale (CSS)

The CSS (Gendreau, Grant, Leipziger, & Collins, 1979) is a 41-item self-report measure of criminal attitudes. Items are endorsed on a 5-point Likert scale, ranging from “strongly disagree” to “strongly agree”. Item scores range from -2 to +2 and several items are reverse coded. The items are arranged into three subscales: 1) Law, Court, Police (LCP) comprising 25 items that reflect adversarial attitudes toward these three legal agents; 2) Tolerance toward Law Violations (TLV), comprising 10 items condoning criminal behaviors; and 3) Identification of Criminal Others (ICO), consisting of 6 items, with statements reflecting similarity or allegiance to individuals who break the law. The LCP scale is summed in the positive direction, such that higher scores represent more positive attitudes toward the law, courts, and police. By contrast, increasing scores on TLV and ICO represent more antisocial attitudes (i.e., favorable toward breaking the law and identifying with criminals). A CSS total score can be computed by summing the TLV and ICO subscales and subtracting this from the LCP subscale—higher total scores represent more prosocial attitudes, while lower scores represent more antisocial attitudes. Research with a sexual offending sample reported adequate reliability and validity of the CSS for use with this population, including high overall internal consistency ($\alpha = 0.94$), convergence with a general risk assessment measure ($r_s = 0.32 - 0.41$), and moderate-to-high predictive validity for recidivism violent and non-violent recidivism outcomes (Witte, Di Placido, Gu, & Wong,

2006). The CSS has been subsequently modified (i.e., the CSS-M; Shields & Simourd, 1991), including minor changes to the wording, reverse scoring the of LCP, and changing the Likert scale from 5-points to 3-points (Witte et al., 2006). Although the CSS-M is presently more widely utilized, the original version was used in this study as that was what was available at the time of data collection.

3.2.6.3.3 Recidivism Variables

Recidivism data were obtained through a national database of official criminal charges and convictions. Namely, the Canadian Police Information Centre (CPIC). Recidivism was defined as any new conviction incurred post-release. Recidivism was binary coded (0 = *No*; 1 = *Yes*) for three outcomes: (a) sexual recidivism, (b) violent recidivism, and (c) general recidivism. The three outcomes were not mutually exclusive. Sexual recidivism was defined as a new conviction for a sexually motivated offence, including contact (e.g., sexual assault) and non-contact (e.g., exposure of genitals) offences. Offences adjudicated as non-sexual (e.g., assault) but could be determined to be sexual in nature (e.g., sexual assault) were recorded as sexual recidivism. Violent recidivism was defined as any offence committed against a person, including actual, potential, and threatened harm to a person. The behaviour could be sexual or non-sexual in nature, meaning that this outcome also encompassed sexual recidivism. Finally, general recidivism was defined as any new offence. It was intended as a catch-all to encompass offences that would be considered sexual and/or violent recidivism, as well as additional offences that would not fit in these categories. The conviction date associated with each recidivism outcome was also recorded to permit examination of the time interval from the point of assessment to the time of recidivism or, in the case of non-recidivists, the data capture date.

3.2.6.4 Procedure

This study was granted ethical approval from the University of Saskatchewan's Behavioural Research Ethics Board (#Beh-2609; Appendix A). Data were collected through a retrospective review of the sample's institutional and clinical files. Demographic information was readily available and taken directly file, as were the pre- and post-treatment CSS scores. The CSS had been administered to participants as part of routine administration over several years during the operation of the Clearwater Program with the intent of evaluating potential treatment gains. Criminal history and recidivism data was collected using CPIC, the national database of official criminal charges and convictions. The PCL-R was scored using available file

information. Trained research assistants reviewed and coded the files for information relevant to scoring the PCL-R items. In order to establish inter-rater reliability of the PCL-R ratings, a randomly selected portion of the files ($N = 22$; 7.8%) were coded by two raters. Inter-rater reliability analyses revealed adequate agreement among raters (intraclass correlation coefficients (ICCs) ranging from .75–.90).

3.2.6.5 Data Analytic Plan

The analyses set out to examine the relationships between the PCL-R, treatment-related changes in criminal attitudes assessed via self-report, and the extent to which these changes are associated with recidivism. The amount of missing data varied across different analyses, as not all of the variables and measures were available for the entire sample. Missing data ranged from 0% – 47% and was handled through listwise deletion. As such, sample sizes varied depending on the analysis.

First, descriptive statistics were completed to determine the means and standard deviations for the sample's pre- and post-treatment scores on the CSS (LCP, TLV, ICO, and Total). This allows for comparisons between this sample and the samples from prior research on magnitude of criminal attitudes. Pre- and post-treatment scores were also compared to determine the sample's mean change following treatment. The difference was examined using paired t-tests and Cohen's d to determine statistical significance and effect size. Means and standard deviations were also completed for the sample's PCL-R scales, as well as a frequency count of the proportion of the sample that would be classified as having "high psychopathy" using the research cut-off of a score of 25. This allows for comparisons to previous research to determine how psychopathic the overall sample is compared to other correctional samples.

Second, in order to establish the associations between the PCL-R scales and the CSS, the PCL-R facet, factors, and total scores were correlated with pre- and post-treatment CSS scores (LCP, TLV, ICO, and Total). These associations indicate the strength of relationship between psychopathy and the CSS. Pearson's correlation coefficients (r) were computed to examine the magnitude of these associations.

Third, the PCL-R scales were correlated with treatment change, defined as the difference between the pre- and post-treatment CSS scores (LCP, TLV, ICO, and Total). Residual scores were used for these associations. Beggs and Grace (2011) have previously raised that change scores are significantly impacted by the magnitude of a pre-treatment score in that when a score

is more pathological (i.e., higher) it has more room to change than scores that are less pathological (i.e., lower). Using residuals allows for examinations with change scores that statistically control for the pre-treatment score. Residual scores were also used for the PCL-R facets, factor 1, and factor 2 scores, allowing for statistical control of the other scales in the resulting scores (e.g., controlling for factor 1 in the factor 2 score). Pearson's correlation coefficients (r) were computed to examine the magnitude of these associations.

Fourth, the predictive validity of both the CSS and the PCL-R scores for recidivism was examined using Area Under the Receiver Operating Characteristic Curve (AUC from ROC analyses; Rice & Harris, 2005). This statistic is the most commonly used and recommended effect size statistic for recidivism prediction as it is less affected by base rates. In this study, AUC values were interpreted using the criteria of Rice and Harris (2005) which state that an AUC value of .56 corresponds to a small/low effect, .64 reflects moderate effect, and .71 reflects a large/high effect. Recidivism was examined using 5- and 10-year caps on the follow-up period, as well with as an unfixed follow-up period. This was done for each of the 3 recidivism outcomes: sexual, violent, and general. AUCs were computed for pre- and post-treatment scores for each CSS scale (LCP, TLV, ICO, and Total), as well as for the PCL-R facets, factor 1, factor 2, and total scores. Pre- and post-treatment CSS scores were entered together to account for missing data. In the event of missing data, the analysis applied listwise deletion, resulting in two AUC values (pre-treatment and post-treatment) using the same number of cases. Given that higher scores on the LCP and total CSS are reflective of more pro-social attitudes (vs. antisocial), the recidivism state variable value was entered as a "0" for analyses involving the LCP and total CSS scores. This is in contrast to the analyses involving the TLV and ICO, in which the value entered was a "1." While this has no impact on the actual analysis (i.e., discriminating between the groups of recidivist and non-recidivists), it allows the resulting AUCs to be in the same direction for ease of comparison. Notably, it ensures that the interpretation of the values is the same (i.e., associations between greater antisocial attitudes and recidivism).

Fifth, Cox regression survival analysis was employed to examine the predictive associations of the treatment change scores over time, on their own and incremental to psychopathy. First, the predictive associations of each of the treatment change scores with recidivism was examined. Residual changes scores were used to allow for statistical control over pre-treatment scores. An unfixed follow-up period was use for these analyses for each of the 3

recidivism outcomes: sexual, general, and violent. The advantage of using Cox regression survival analysis with an unfixed follow-up period is that it controls for individual differences in follow-up time. Next, Cox regression survival analysis was employed again to examine the incremental contributions of the change scores (LCP, TLV, ICO, and Total) in predicting recidivism over and above the PCL-R total score.

Sixth, the sample was divided into two groups (i.e., low scoring (< 25) and high scoring (≥ 25) psychopathy) and compared on their CSS scores. In order to control for familywise error, between-groups comparisons were examined using one-way multivariate analysis of variance (MANOVA) with Tukey beta post hoc comparisons. The resulting analysis permitted comparisons of mean CSS scores (LCP, TLV, ICO, and Total) between those who score low on psychopathy versus those who score high.

Seventh, additional groups were created according to both psychopathy score (i.e., low or high) and scores on select CSS scales (TLV and ICO). The TLV and ICO were of focus because they reflect the most explicitly antisocial attitudes and emerged as the strongest predictors in the research of Olver et al. (2021) as well as in previous analyses of this study. High and low scores of psychopathy are defined as scores of < 25 (low) and scores of ≥ 25 (high). High and low scores on the CSS subscales was determined using a mean split. Two sets of groups were made. The first was low x high psychopathy and low x high TLV group resulting in four groups: a) low psychopathy x low TLV; b) high psychopathy x low TLV; c) high TLV x low psychopathy; and d) high TLV x high psychopathy. The second set was a low x high psychopathy and low x high ICO group resulting in four groups: a) low psychopathy x low ICO; b) high psychopathy x low ICO; c) high ICO x low psychopathy; and d) high ICO x high psychopathy. The groups were then compared on their recidivism rates for each of the 3 recidivism outcomes: sexual, violent, and general recidivism. Both the 5-year and 10-year fixed follow-up periods were examined. Rates of recidivism were compared using chi-square analysis to determine whether the differences in rates were statistically significant.

Finally, the groups created in the previous analysis (i.e., low x high psychopathy and low x high TLV/ICO) were compared on their recidivism trajectories using Kaplan Meier Survival Analysis. The groups were compared on their trajectories for each of the 3 recidivism outcomes: sexual, violent, and general. An unfixed follow-up period was used, as the analysis controls for individual differences in follow-up time.

3.2.7 Results

3.2.7.1 Comparisons of Pre- and Post-treatment Scores

The means and standard deviations were computed for each CSS scale for the pre-treatment, post-treatment, and treatment change scores. These are presented in Table 3.1. Pre- and post-treatment scores were also compared using paired t-tests and Cohen's *d* effect size analyses. Descriptively, the means and standard deviations of for total and subscale scores are consistent with those found reported in Witte et al. (2006). Although this study utilizes overlapping samples with the present study, the present study's sample is nearly four times the size. Witte et al. (2006) reported their study means to be similar to a sample of violent and sexual offenders (Mills & Kroner, 1997) and a non-offender undergraduate sample (Andrews & Wormith, 1984). Thus, the CSS scores observed in this study did not deviate from that of previous research in any substantial way (i.e., the present sample did not endorse drastically more or fewer criminal attitudes than other populations).

There was small ($d = 0.31 - 0.40$) but significant post-treatment changes observed with each of the CSS subscales and the total score. The changes observed were each in the expected direction. That is, they reflected gains made in treatment. Notably, there was an increase in the mean LCP score, indicating more prosocial attitudes towards law, courts, and police, and a decrease in mean TLV and ICO scores, indicating a reduction in attitudes condoning breaking the law and reduced identification with individuals who break the law. There was also an average increase in the total CSS score, reflecting an overall increase in prosocial attitudes.

Means and standard deviations were also obtained for the Psychopathy Checklist – Revised scales and total scores. As these were only assessed at one point in time, there is no change data for these scores. The obtained means and standard deviations are as follows: interpersonal facet ($M = 2.74, SD = 1.94$), affective facet ($M = 4.49, SD = 2.12$), lifestyle facet ($M = 5.61, SD = 2.50$), antisocial facet ($M = 5.50, SD = 2.84$), factor 1 ($M = 7.22, SD = 3.59$), factor 2 ($M = 11.10, SD = 4.72$), and total score ($M = 20.65, SD = 7.52$). The proportion of the sample that reached the research threshold of “high psychopathy” (i.e., a score of 25 or greater) was also examined. Of the 282 individuals being treated, 30.9% ($N = 87$) met this threshold.

3.2.7.2 Associations Between Pre- and Post-Treatment Scores and PCL-R Scores

Correlations were computed to establish associations between the PCL-R facet, factor, and total scores and the CSS pre- and post-treatment scores (LCP, TLV, ICO, and total; Table

3.2). The strongest and most consistent associations were seen with the lifestyle, antisocial, and factor 2 scores. Small to moderate associations emerged with each of the CSS scales, indicating that individuals with higher lifestyle and antisocial psychopathic traits endorse more antisocial attitudes including adversarial attitudes towards law, court, and police, condoning illegal behavior, and similarity to individuals who break the law. While the PCL-R factor 1 did not demonstrate any significant associations with any of the CSS scales, small associations were observed between the affective facet and pre-treatment scores for each of the CSS scales, indicating that prior to treatment, increased affective psychopathic traits were associated with increased antisocial attitudes. One small significant positive association was observed between the PCL-R interpersonal facet and post-treatment LCP scores, indicating that following treatment, higher interpersonal psychopathic traits were associated with increased prosocial attitudes towards law, court, and police.

3.2.7.3 Associations Between Residual Treatment Change Scores and PCL-R Scores

Correlations were computed to establish associations between the PCL-R facet, factor, and total scores and CSS treatment change scores (Table 3.3). Residual changes scores were used to allow for statistical control over pre-treatment scores. Similarly, residual scores were used for the PCL-R facets and factors in order to allow for statistical control over the other scales in the resulting score of each PCL-R scale. Positive associations were observed between residual interpersonal and factor 1 scores with residual LCP and total change scores, indicating that higher level of the interpersonal features of psychopathy were related to positive self-reported treatment change in overall antisocial attitudes and adversarial attitudes towards law, court, and police. Residual interpersonal scores were also positively related with residual TLV change scores, suggesting a decrease in attitudes supportive illegal behaviour among those with greater levels of these traits. Residual factor 2 scores demonstrated a small inverse relationship with residual ICO change scores, indicating that there was less treatment change in allegiance with individuals who engage in crime for those men who had with higher antisocial and lifestyle psychopathic traits. Finally, a small positive association was observed between the residual PCL-R total score and residual LCP change scores, indicating that having higher overall psychopathic traits were actually associated with greater amounts of treatment change in adversarial attitudes towards law, court, and police.

3.2.7.4 Predictive Validity of Pre- and Post-Treatment Criminal Attitude Scores for Recidivism

ROC analyses were used to examine the measure's predictive accuracy for each of the recidivism outcomes (sexual, violent, and general) at each of the follow-up periods (5-year, 10-year, and overall). The predictive accuracy of both the pre-treatment and post-treatment CSS scores were examined. The sample was followed up by a mean of 12.90 years ($SD = 4.63$) post-release. The overall recidivism rates were 28.0% (79 of 282) for sexual recidivism, 53.20% (150 of 282) for violent recidivism, and 66.30% (187 of 282) for general recidivism. Table 3.4 presents the results of the ROC analyses.

Overall, the CSS scales most consistently predicted general recidivism. Each of the study's CSS scores (pre-treatment and post-treatment LCP, TLV, ICO, and total) were predictive of general recidivism at each of the follow-up periods (5-year, 10-year, and unfixed). The magnitudes of association were small to moderate in effect. Similarly, each of the study's CSS scores (pre-treatment and post-treatment LCP, TLV, ICO, and total) demonstrated small-to-moderate predictive associations with violent recidivism using the 5-year and unfixed follow-up periods. Three of the scores (TLV post-treatment, ICO pre-treatment, and Total pre-treatment) were also modestly predictive of violent recidivism at the 10-year follow-up. Only one predictive association emerged between the CSS scales and sexual recidivism. Notably, the ICO pre-treatment score was modestly predictive of sexual recidivism using a 10-year fixed follow-up period.

3.2.7.5 Predictive Validity of PCL-R Scores for Recidivism

ROC analyses were used to examine the PCL-R predictive accuracy for each of the recidivism outcomes (sexual, violent, and general) at each of the follow-up periods (5-year, 10-year, and overall). Table 3.5 presents the results of the ROC analyses. The PCL-R lifestyle, antisocial, factor 2, and total scores were predictive of each of the recidivism outcomes (sexual, violent, and general at the various follow-up periods), with the largest and associations observed between the antisocial and factor 2 scores and violent and general recidivism. No significant associations were observed between the interpersonal and factor 1 scores and any of the recidivism outcomes. The affective facet was modestly predictive of violent recidivism (5-year and unfixed) and general recidivism (5-year).

3.2.7.6 Predictive Associations Between Treatment Change and Recidivism

Cox regression analyses were calculated to determine the predictive associations between CSS treatment change scores and recidivism, on their own and incremental to the PCL-R. The associations with sexual, violent, and general recidivism were each examined using unfixed follow-up periods. In these analyses the residual change scores are used, allowing for statistical control of the pre-treatment score in the resulting change score. As seen in Table 3.6, the treatment change scores were most consistently predictive of violent recidivism. The TLV and ICO change scores were each predictive of violent recidivism, on their own and incrementally to the PCL-R. The LCP and total scores were not significantly predictive of violent recidivism on their own but contributed meaningfully to the prediction of violent recidivism when paired with the PCL-R total score. Similarly, while none of the CSS scales were significantly predictive of general recidivism when entered on their own, the LCP, TLV, and total CSS scores were incrementally predictive of general recidivism in models where they were paired with the PCL-R. None of the scales were significantly predictive of sexual recidivism, either on their own or incrementally to PCL-R. The PCL-R was significantly predictive of all recidivism outcomes. The directionality of significant predictions indicated that the CSS change scores were associated with decreases in recidivism, while the PCL-R score was associated with higher rates of recidivism.

3.2.7.7 Comparisons of Criminal Attitudes Among Low and High Psychopathy Groups

Individuals with low (< 25) and high (≥ 25) psychopathy scores were compared on the average endorsement of criminal attitudes (mean LCP, TLV, ICO, and total CSS scores). Between-groups comparisons were examined using one-way multivariate analysis of variance (MANOVA) with Tukey beta post hoc comparisons. Table 3.7 outlines these results. The low psychopathy group had higher (i.e., more prosocial) pre-treatment LCP and pre-treatment total scores, and lower (i.e., more prosocial) ICO pre-treatment and post-treatment scores. This indicates that those with fewer psychopathic traits endorse fewer attitudes consistent with criminality, including endorsement of a more favorable view of law, courts, and police, and less identification with criminal peers. However, the high psychopathy group had higher (i.e., more prosocial) LCP and total change scores, suggesting that those higher in psychopathic traits made more treatment gains in their overall criminal attitudes and attitudes towards the justice system compared to their low psychopathy counterpart. There were no significant differences between

the group in their tolerance of law violations meaning that neither group was more and less likely to condone illegal behaviour.

3.2.7.8 Comparisons of Recidivism Rates Among Low x High Psychopathy and Low x High TLV/ICO Groups

Frequency and chi-square analyses were used to examine group differences in recidivism across low and high scoring psychopathy and TLV / ICO groups. The results of the analyses involving the TLV are found in Table 3.8. While there were no significant differences among the groups on their rates of sexual recidivism, the groups significantly differed in their rates of violent and general recidivism (5-year and 10-year follow-up), with the highest recidivism rates observed among the group with the highest psychopathy and highest TLV scores. Group differences were moderate in effect size (Cramer's $V = 0.20 - 0.31$).

Table 3.9 outlines the analyses involving ICO scores. Similar to the TLV analyses, while there were no significant differences among the groups on their rates of sexual recidivism, the groups significantly differed in their rates of violent and general recidivism (5-year follow-up). The highest recidivism rates were observed among the group with the highest psychopathy and highest ICO scores. Group differences were small-to-moderate in effect size (Cramer's $V = 0.18 - 0.21$). Taken together, the results of these two sets of analyses suggest that those with more psychopathic traits and attitudes supportive of criminality and more likely to reoffend, generally and violently.

3.2.7.9 Group Comparisons of Recidivism Trajectories

The aforementioned groups (low and high psychopathy x low and high TLV / ICO) were compared on trajectories of sexual, violent, and general recidivism using Kaplan-Meier Survival Analysis (Figure 3.1). Regarding the TLV groups, while no significant differences were found in the trajectories of sexual recidivism, the high PCL-R x high TLV group demonstrated the steepest trajectory of violent recidivism. The differences between this group and the remaining three groups were each statistically significant (i.e., between high PCL-R x high TLV and low PCL-R x low TLV, log rank $\chi^2 (1, N = 152), 27.70, p < .001$, between high PCL-R x high TLV and low PCL-R x high TLV, log rank $\chi^2 (1, N = 105), 14.75, p < .001$, and between high PCL-R x high TLV and high PCL-R x low TLV, log rank $\chi^2 (1, N = 61), 8.28, p = .004$). A similar pattern emerged with the general recidivism outcome, with the high PCL-R x high TLV group demonstrating the steepest trajectory of general recidivism. Again, the differences between this

group and the remaining three groups were each statistically significant (i.e., between high PCL-R x high TLV and low PCL-R x low TLV, log rank χ^2 (1, $N = 152$), 32.39, $p < .001$, between high PCL-R x high TLV and low PCL-R x high TLV, log rank χ^2 (1, $N = 105$), 14.77, $p < .001$, and between high PCL-R x high TLV and high PCL-R x low TLV, log rank χ^2 (1, $N = 61$), 10.05, $p = .002$). Taken together, these results suggest that higher levels of psychopathic traits are associated with higher and faster rates of recidivism following release to the community. The steepest trajectories were observed among those with higher psychopathic traits who also endorsed more attitudes condoning illegal behaviour.

The recidivism trajectories for the ICO groups are displayed in Figure 3.2. Descriptively, the high PCL-R x low ICO group had the steepest trajectory of sexual recidivism. Although none of the group differences reached the threshold of statistical significance, the difference between this group and each of the other three groups was trending in the direction of significance (i.e., between high PCL-R x low ICO and low PCL-R x low ICO group, log rank χ^2 (1, $N = 140$), 3.00, $p = .083$, between high PCL-R x low ICO and high PCL-R x high ICO, log rank χ^2 (1, $N = 61$), 3.10, $p = .078$, and between high PCL-R x low ICO and low PCL-R x high ICO, log rank χ^2 (1, $N = 97$), 2.92, $p = .087$). With regards to violent recidivism, the steepest trajectory was observed among the high PCL-R x high ICO group. While the difference was not statistically significant between this group and the high PCL-R x low ICO group (log rank χ^2 (1, $N = 61$), 1.86, $p = .173$), the group significantly differed from the low PCL-R x high ICO (log rank χ^2 (1, $N = 116$), 7.40, $p = .007$) and low PCL-R x low ICO group (log rank χ^2 (1, $N = 159$), 18.24, $p < .001$). Finally, as with the violent recidivism outcome, the steepest trajectory for general recidivism was observed among the high PCL-R x high ICO group. This difference was statistically significant in comparison with the low PCL-R x high ICO group (log rank χ^2 (1, $N = 116$), 6.92, $p = .009$) and low PCL-R x low ICO group (log rank χ^2 (1, $N = 159$), 13.21, $p < .001$), but not the high PCL-R x low ICO group (log rank χ^2 (1, $N = 61$), 1.30, $p = .253$). No other significant differences were observed. Taken together, these findings suggest that higher PCL-R scores are associated with higher and faster rates of recidivism, with the greatest rates observed among those who also have higher allegiance to individuals who break the law in the case of violent and general recidivism, and lower allegiance in the case of sexual recidivism.

3.2.8 Discussion

The present study explored the relationships between self-reported criminal attitude change, psychopathy, and recidivism in a sample of Canadian federally incarcerated males convicted of sexual offences. The study's sample received treatment services from the Clearwater Program, a CBT-based sexual offending program grounded in RNR principles. The analyses featured a self-report measure of general criminal attitudes (i.e., the CSS), administered in real time pre- and post-treatment as part of routine service delivery. Psychopathy was conceptualized and assessed using the PCL-R. The sample was followed for approximately 12 years post-release.

3.2.8.1 Overall Pre-Posttreatment Change in Criminal Attitudes

Statistically significant pre-post-treatment changes were observed for each of the CSS's scales, and in the expected direction. That is, there was a decrease in scores whereby a higher score would signal greater criminal attitudes (e.g., tolerance toward law violations and identification with criminal others) and an increase in scores whereby a higher score would indicate greater prosocial attitudes (e.g., the CSS total score and attitudes towards law, courts, and the police). Each of these differences were small in effect, albeit consistent and seemingly non-trivial. This suggests that there were changes in the sample's general criminal attitudes in that they evidenced more prosocial scores following treatment, including in their views of law, court, and police, their perceived allegiance with others who engage in criminal activity, and their condoning of criminal behaviour. This provides additional support of the dynamic nature of criminal attitudes and more specifically, suggests that sexual offence-specific treatment can have a positive influence on general criminal attitudes.

3.2.8.2 Associations Between Psychopathy and Criminal Attitudes and Attitudinal Change

The study's sample was relatively psychopathic, with an average PCL-R score of approximately 20 and over 30% of the sample meeting the research cut-off (i.e., 25) of psychopathy. This exceeds the high end of base rates generally seen in incarcerated populations, which have been reported as between 15 and 25% (Hare, 1996; Wong, 1984). As a sexual offending sample with mixed victimology (i.e., adult victims, child victims, and both), this number is generally consistent with base rates from previous research, which suggest that the base rates are relatively low among samples with only child victims (i.e., 5-10%) and higher

among samples with adult or mixed victims (i.e., approximately 33%) (Olver & Wong, 2006; Olver, 2016; Porter et al., 2000).

Comparisons between individuals who scored low on the PCL-R (i.e., less than 25) versus those who scored high (i.e., received a PCL-R of 25 or greater) revealed statistically significant differences in self-reported criminal attitudes. In general, those with more psychopathic traits endorsed more antisocial attitudes, particularly at the pre-treatment assessment. This trend was observed for the CSS total score, as well as the LCP and ICO subscales. However, the two groups did not significantly differ on the TLV subscale, either pre- or post-treatment. Interestingly, this finding is opposite to that of Simourd and Hoge (2000), who found differences between their high and low scoring psychopathy groups in the total score and TLV subscale but not the LCP or ICO subscales. There are a number of possible reasons for this, some which may be methodological. For example, Simourd and Hoge (2000) used a more conservative cut-off of 30 for high psychopathy, a number that is typically used clinically but may underestimate psychopathy in a research sample due to the challenges of assessing the interpersonal and affective facets from file information (Olver, 2016). Further, Simourd and Hoge (2000) also had less than half the high scorers in their sample, which may have limited their power. With replication and further clarification from future research, the findings of the current study may have implications for the types of criminal attitudes that separate those with psychopathy from those who have fewer traits. For instance, engaging in justifications for criminal behaviour may be seen equally across offenders, regardless of psychopathic traits, whereas those with psychopathy may have less favorable views towards the justice system and have greater allegiance with criminal peers. Given that tolerance toward law violations is rooted in theories related to wanting to distance oneself from any negative feelings associated with their criminal behaviour (i.e., Techniques of Neutralization Theory; Sykes & Matza, 1957), it makes theoretical sense that this is common to all persons who commit crime rather than only those with specific personality traits. The increased elevations on the LCP and ICO subscales may reflect increased antisociality among psychopathy generally, and research supporting the notion that those with psychopathy have more antisocial companions and a more antisocial orientation / lifestyle than their non-psychopathic counterparts (Simourd & Hoge, 2000).

The pattern of associations observed between the raw pre- and post-treatment CSS scores and PCL-R facets and factors served to clarify the relationships between criminal attitudes and

psychopathy. Notably, it was factor 2, along with antisocial and lifestyle facets (i.e., the facets that combine to make factor 2), that demonstrated the strongest and most consistent relationships with each of the CSS subscales. These associations were small-to-moderate in effect. To the best of the author's knowledge, this is the first investigation that has examined the relationships between the CSS and the different components that comprise psychopathy. These findings suggest that it is the factor 2 traits of psychopathy that account for increased criminal attitudes among those with psychopathy, which is both theoretically intuitive and empirically supported by lines of research demonstrating it is factor 2 that is most consistently associated with recidivism (Yang et al., 2010). As such, we would expect this factor to be more associated with risk factors such as criminal attitudes compared to its less predictive counterpart (i.e., factor 1).

From a treatment perspective, the relationship between criminal attitude change and psychopathy is of primary concern. While it is meaningful to know that those with higher psychopathic traits are of greater need in this area, and that this may be accounted for by factor 2 traits, determining whether these attitudes are amenable to treatment in this population is critical to reducing the likelihood of future offending behaviour. First and most encouragingly, there was evidence of positive therapeutic change (i.e., more prosocial attitudes following treatment) among those with high psychopathy scores. This was observed descriptively in comparing pre- and post-treatment means and in the comparisons between the high and low psychopathy groups. In fact, the high psychopathy group demonstrated significantly greater positive pre-post-treatment change in their LCP and total CSS scores compared to the low psychopathy group. While it is tempting to conclude that those with higher psychopathy benefitted more from treatment than those with less psychopathic traits, it is important to keep in mind that raw change scores are significantly influenced by pre-treatment scores (i.e., the amount "room" for change), which were significantly higher among the high psychopathy group. This is the basis of the reasoning for use of residual scores (Beggs & Grace, 2011), which were used in the analyses between treatment change and the psychopathy facets and factors. These analyses revealed significant positive associations between the interpersonal facet and factor 1 scores and the LCP and total score, indicating that higher interpersonal and factor 1 traits were associated with increased treatment change in overall criminal attitudes and attitudes more specifically towards the justice system. There was also a positive association between the interpersonal facet and the TLV subscale, indicating increased positive change in attitudes that condone illegal behaviour

among those with interpersonal psychopathic traits. Given that these associations were relatively small in magnitude and the interpersonal psychopathic traits are associated with manipulation, deceit, and grandiosity in how one presents themselves, caution is warranted in interpreting these results. Future research may help clarify these associations.

3.2.8.3 Links Between Criminal Attitudes, Psychopathy, and Recidivism

In the present study, psychopathy was associated with sexual, violent, and general recidivism, with the antisocial facet, lifestyle facet, and factor 2 (i.e., the combination of the antisocial and lifestyle facets) scores coming out as the strongest and most consistent predictors. This is consistent with the literature and specifically, meta-analytic research demonstrating factor 2 to be the strongest predictor of recidivism (Leistico et al., 2008; Yang et al., 2010), including sexual recidivism (Hawes et al., 2013). Also consistent with previous research, psychopathy was a stronger predictor of non-sexual violence than it was sexual violence (Hawes et al., 2013).

The predictive validity of the CSS was also examined. Each of the scales was predictive of general and violent recidivism, associations that were small-to-moderate in effect. Consistent with Helmus et al. (2013) meta-analysis of sexual offence specific attitudes, there was no clear pattern to suggest that either pre- or post-treatment scores better predicted recidivism. That is, both pre-treatment and post-treatment assessments of general criminal attitudes demonstrated similar levels of predictive accuracy. Only one predictive association was observed with sexual recidivism. Notably, pre-treatment ICO scores were predictive of sexual recidivism when a 10-year fixed follow-up period was used. These findings are generally consistent with previous research, which has found the CSS and other measures of criminal attitudes (e.g., criminal attitudes domain of the LSI-R) to be more predictive of general and violent, but not sexual recidivism (Olver et al., 2014; Olver et al., 2021; Witte et al., 2006).

In the current study, the relationships between psychopathy, criminal attitudes, and recidivism were also looked at in two additional ways. First, the rates of recidivism were compared across high and low scoring psychopathy and criminal attitudes groups. Next, the recidivism trajectories for these groups were examined, allowing additional information beyond the proportion of the sample that reoffended to include data about how quickly each group reoffended. The TLV and ICO subscales were focused on for these analyses, given that they were more consistently associated with recidivism outcomes even after controlling for baseline risk in research that used a sample that overlapped with the present study's sample (Olver et al.,

2021). The general trends observed suggested that those high in psychopathic traits and endorsing high levels of criminal attitudes are at the greatest risk of offence for general and violent recidivism and reoffend the most quickly and frequently. Descriptively, those with high psychopathy and high TLV scores appeared to be at the most elevated risk, with recidivism rates of over 70% for each of the violent and general recidivism outcomes and recidivism rate of over 90% for general recidivism at a 10-year follow-up. However, some caution is warranted in generalizing these results, as the creation of multiple groups resulted in smaller *ns* for some of groups (i.e., approximately 20 cases in some cells). Although no significant differences were found for sexual recidivism rates among the groups, an interesting finding emerged when examining the trajectories. Across each of the trajectories, the groups with high psychopathy traits reoffended the fastest. This, combined with high criminal attitudes, was associated with the fastest recidivism among violent and general offending outcomes, whereas those who scored low on the ICO subscale (i.e., had less allegiance with criminal peers) were trending towards being the most likely as well as fastest to reoffend sexually. This may highlight the different nature of sexual offending, which may be influenced less by one's antisocial peer group than other forms of criminal behaviour. Other factors may be of greater relevance for this type of offending. Of note, sexual deviance is considered one of the biggest predictors of sexual offending and is unique to this offending behaviour (Hanson & Morton-Bourgon, 2004; Hanson & Morton-Bourgon, 2005).

3.2.8.4 The Risk-Relevance of Modifications to Criminal Attitudes

Perhaps the most meaningful research question for this study is whether the treatment change observed in the study is risk-relevant (i.e., linked to recidivism), particularly after controlling for the predictive effects of psychopathy. The study found evidence of modification in criminal attitudes, changes which may be associated with psychopathy. However, it is important to discern whether these changes have relevance for subsequent reoffending behaviour and if they offer anything unique to the prediction beyond an individual's level of psychopathy, which we know from several lines of previous research to be a robust predictor of recidivism outcomes (Hawes et al., 2013; Leistico et al., 2008; Yang et al., 2010). This study's Cox regression analyses suggest that when combined with the PCL-R, general criminal attitudes incrementally predict violent and general recidivism. That is, they offer unique variance over and above what is captured by the PCL-R. This pattern was observed for the total CSS score and

each of the subscales for violent recidivism, and for all scales except the ICO for general recidivism. Consistent with the predictive validity analyses, there were no relationships with sexual recidivism. The analyses generated a hazard ratio (e^B), which represents predicted change in the hazard of an event (i.e., recidivism), for every-one unit change in the predictor (i.e., change in CSS scores). When the value is below 1.0, this indicates an inverse relationship (i.e., a reduction in recidivism rates as a result of change), whereas a value above 1.0 indicates a positive relationship (i.e., an increase in recidivism as a result of change). The hazard ratios observed with these analyses indicated that changes in the CSS scores were associated with reductions in violent and general recidivism over time. This study is one of few investigations to examine the relationship between changes in criminal attitudes and recidivism as a function of psychopathy and provides unique information. Although there has been prior evidence that changes on the CSS are associated with rearrest (i.e., correlated with rearrest; Simourd et al., 2016) and predictive of violent and general recidivism outcomes controlling for static and dynamic measures of sexual violence risk (Olver et al., 2021), the current study adds to these findings in offering that the scale is also predictive of recidivism outcomes when controlling for psychopathy. The findings suggest that changes in criminal attitudes are meaningful from an RNR perspective and can be captured with a self-report measure.

3.2.8.5 Study Limitations

One of the primary limitations of this study, and one that is common to this field more generally, is a lack of treatment control group. Many of the study's interpretations rest on the assumption that the changes observed in the criminal attitude scores resulted from treatment. However, without a control group, we are unable to test this empirically, and it remains possible that change may have been due to factors outside of treatment. This is partially offset by the specific treatment program that was utilized in this study, which is regarded as a credible change agent. The Clearwater Program was developed based on theories rooted in empirical evidence and has been extensively studied with favorable results pointing to meaningful change. An additional study limitation is the self-report nature of the study's primary measure, the CSS. It is plausible that individuals may not have been motivated to portray themselves in a genuine way, either under-reporting the extent of their attitudes or over-reporting their attitudes if there may have been a perceived value in doing so. This is arguably particularly relevant with psychopathy, which is characterized by deceitful and manipulative behaviours. The inclusion of a social

desirability scale or other validity indices may have helped offset some of these concerns, as it would permit analyses of whether the sample was motivated to present themselves in a particular way. That said, previous research on this sample has found controlling for social desirability to have little or no impact on substantive findings. This potential limitation may also be met with an equally beneficial advantage in that self-report allows for access to an individual's thoughts that may not have otherwise been available. It also provides useful information in and of itself about what individuals are willing to disclose. In this case, what was disclosed appeared to be meaningful in the patterns of relationships that emerged. Finally, for a number of possible reasons (e.g., drop-out, refusal to complete post-treatment measures, missing completed test protocols that were never entered), there was a loss in the number of cases (i.e., approximately 70) who completed the post-treatment evaluation compared to those who completed the pre-treatment assessment. While there was still an adequate sample size at post-treatment for the many of the analyses (i.e., over 200 cases), this number became smaller for certain analyses where the sample was divided into multiple groups. In some cases, this may have limited the power of the analyses. It is also plausible that there were characteristics specific to those who completed both assessment versus those who completed only one that may have influenced the data in a meaningful way.

3.2.8.6 Conclusions and Future Directions

The present study is a novel investigation of self-reported criminal attitude change, psychopathy, and recidivism in a sample of incarcerated males who participated in a high-intensity RNR-based treatment program for sexual offending. Important strengths of the study include its lengthy follow-up period for capturing recidivism data and the ecological nature of the psychometric assessment, which was done in real time during the operation of the treatment program. The study's measure of focus, the CSS, was developed for use with correctional populations and has evidenced adequate psychometric properties for use with sexual offending populations. This measure was used to capture the sample's general criminal attitudes before and after treatment. The psychopathic traits of the sample were also of interest and assessed using the PCL-R. This permitted an examination of the relationships between psychopathy and criminal attitude change, adding both to the body of literature of the RNR relevance of criminal attitudes as well as the therapeutic response of psychopathy.

The study's findings provide general support for the notion that criminal attitudes are more prevalent among individuals high in psychopathic traits relative to their less psychopathic counterparts, with evidence to suggest that factor 2 psychopathy traits of psychopathy are most strongly associated with criminal attitudes. There was also evidence to suggest that the combination of high psychopathic traits and greater endorsement of criminal attitudes places individuals at an increased risk of violent and general recidivism, and a propensity to reoffend faster than those with fewer traits and criminal attitudes. Encouragingly, there was a reduction in general criminal attitudes following treatment, even among those high in psychopathic traits, and these positive changes resulted in reduced recidivism rates after controlling for psychopathy scores. These findings are interesting and highlight the importance of directly assessing and treating criminal attitudes as part of an RNR-based approach. This may be particularly true for those high in psychopathic traits. Given the preliminary nature of these findings, future research is recommended to increase generalizability and replicate the findings. Future efforts may wish to include additional self-report measures of criminal attitudes, including a mix of general and offence-specific measures. This may help clarify the relative contributions of general and offending specific attitudes in the prediction of recidivism and explore how treatment programs may impact change in each area.

References

- Abel, G. G., Gore, D. K., Holland, C. L., Camp, N., Becker, J. V., & Rathner, J. (1989). The measurement of the cognitive distortions of child molesters. *Annals of Sex Research, 2*, 135–153.
- Andrews, D. A., & Bonta, J. (1994). *The psychology of criminal conduct*. Cincinnati, OH: Anderson Publishing.
- Andrews, D. A., & Bonta, J. (2010). *The psychology of criminal conduct* (5th ed.). New Providence, NJ: LexisNexis.
- Andrews, D. A., Bonta, J., & Wormith, J. S. (2011). The risk-need-responsivity (RNR) model: Does adding the good lives model contribute to effective crime prevention? *Criminal Justice and Behavior, 38*, 735–755.
- Andrews, D. A., & Wormith, J. S. (1984). *Criminal sentiments and criminal behavior*. Ottawa, ON: Ministry of the Solicitor General of Canada.
- Beggs, S. M., & Grace, R. C. (2011). Treatment gain for sexual offenders against children predicts reduced recidivism: A comparative validity study. *Journal of Consulting and Clinical Psychology, 79*, 182–192.
- Bonta, J., & Andrews, D. A. (2007). *Risk-need-responsivity model for offender assessment and rehabilitation* (User Report No. 2007-06). Ottawa, Canada: Public Safety Canada
- Bumby, K. M. (1996). Assessing the cognitive distortions of child molesters and rapists: Development and validation of the MOLEST and RAPE scales. *Sexual Abuse: A Journal of Research and Treatment, 8*, 37–54.
- Burt, M. R. (1980). Cultural myths and support for rape. *Journal of Personality and Social Psychology, 38*, 217–230.
- Cottle, C. C., Lee, R. J., & Heilbrun, K. K. (2001). The prediction of criminal recidivism in juveniles: A meta-analysis. *Criminal Justice and Behavior, 28*, 367-394.
- DeSorcy, D. R., Olver, M. E., & Wormith, J. S. (2020). Working alliance and psychopathy: Linkages to treatment outcome in a sample of treated sexual offenders. *Journal of Interpersonal Violence, 35*, 1739–1760.
- Gendreau, P., Grant, B. A., Leipziger, M., & Collins, C. (1979). Norms and recidivism rates for the MMPI and selected experimental scales on a Canadian delinquent sample. *Canadian Journal of Behavioral Science, 11*, 21–31.

- Gendreau, P., Little, T., & Goggin, C. (1996). A meta-analysis of predictors of adult recidivism: What works! *Criminology*, *34*, 401–433.
- Hanson, R. K., Gizzarelli, R., & Scott, H. (1994). The attitudes of incest offenders: Sexual entitlement and acceptance of sex with children. *Criminal Justice and Behavior*, *27*, 6–35.
- Hanson, R. K., & Morton-Bourgon, K. (2004). *Predictors of sexual recidivism: An updated meta-analysis*. Ottawa, Canada: Public Safety and Emergency Preparedness Canada.
- Hanson, R. K. & Morton-Bourgon, K. E. (2005). The characteristics of persistent sexual offenders: A meta-analysis of recidivism studies. *Journal of Consulting and Clinical Psychology*, *73*, 1154-1163.
- Hare, R. D. (1996). Psychopathy, a clinical construct whose time has come. *Criminal Justice and Behavior*, *23*, 25–54.
- Harris, G., & Rice, M. (2006). Treatment of psychopathy: A review of empirical findings. In C. Patrick (Ed.), *Handbook of psychopathy* (pp. 555–572). New York, NY: Guilford.
- Hawes, S. W., Boccaccini, M. T., & Murrie, D. C. (2013). Psychopathy and the combination of psychopathy and sexual deviance as predictors of sexual recidivism: Meta-analytic findings using the Psychopathy Checklist—Revised. *Psychological Assessment*, *25*, 233–243.
- Helmus, L., Hanson, R. k., Babchishin, k. M., & Mann, R. E. (2013). Attitudes supportive of sexual offending predict recidivism: A meta-analysis. *Trauma, Violence, & Abuse*, *14*, 34–53.
- Landenberger, N. A., & Lipsey, M. W. (2005). The positive effects of cognitive behavioral programs for offenders: A meta-analysis of factors associated with effective treatment. *Journal of Experimental Criminology*, *1*, 451–476.
- Langton, C. M., Barbaree, H. E., Harkins, L., & Peacock, E. J. (2006). Sex offenders’ response to treatment and its association with recidivism as a function of psychopathy. *Sexual Abuse: Journal of Research and Treatment*, *18*, 99–120.
- Leistico, A. M. R., Salekin, R. T., DeCoster, J., & Rogers, R. (2008). A large-scale meta-analysis relating the Hare measures of psychopathy to antisocial conduct. *Law and Human Behavior*, *32*, 28–45.

- Lipsey, M. W., Chapman, G. L., & Kider, S. B. (2001). Cognitive-behavioral programs for offenders. *The Annals of the American Academy of Political and Social Science*, 578, 144–157.
- Looman, J., Abracen, J., Serin, R., & Marquis, P. (2005). Psychopathy, treatment change, and recidivism in high-risk, high-need sexual offenders. *Journal of Interpersonal Violence*, 20, 549–568.
- Lösel, F., & Schmucker, M. (2005). The effectiveness of treatment for sexual offenders: A comprehensive meta-analysis. *Journal of Experimental Criminology*, 1, 117–146.
- Mills, J. F., & Kroner, D. G. (1997). The Criminal Sentiments Scale: Predictive validity in a sample of violent and sex offenders. *Journal of Clinical Psychology*, 53, 399–404.
- Ogloff, J. D., Wong, S. C., & Greenwood, A. (1990). Treating criminal psychopaths in a therapeutic community program. *Behavioral Sciences and the Law*, 8, 181–190.
- Olver, M. E. (2016). Treatment of psychopathic offenders: Evidence, issues, and controversies. *Journal of Community Safety and Well-Being*, 1, 75–82.
- Olver, M. E., Stockdale, K. C., & Simourd, D. J. (2021). Assessment and modification of general criminal attitudes among men who have sexually offended. *Criminal Justice and Behavior*, 48, 459–480.
- Olver, M. E., Stockdale, K. C., & Wormith, J. S. (2011). A meta-analysis of predictors of offender treatment attrition and its relationship to recidivism. *Journal of Consulting and Clinical Psychology*, 79, 6–21.
- Olver, M. E., Stockdale, K. C., & Wormith, J. S. (2014). Thirty years of research on the Level of Service Scales: A meta-analytic examination of predictive accuracy and sources of variability. *Psychological Assessment*, 26, 156–176.
- Olver, M. E., & Wong, S. C. (2006). Psychopathy, sexual deviance, and recidivism among sex offenders. *Sexual Abuse: A Journal of Research and Treatment*, 18, 65–82.
- Olver, M. E., & Wong, S. C. (2009). Therapeutic responses of psychopathic sexual offenders: Treatment attrition, therapeutic change, and long-term recidivism. *Journal of Consulting and Clinical Psychology*, 77, 328–336.
- Pearson, F. S., Lipton, D. S., Cleland, C. M., & Yee, D. S. (2002). The effects of behavioral/cognitive-behavioral programs on recidivism. *Crime & Delinquency*, 48, 476–496.

- Porter, S., Fairweather, D., Drugge, J., Hervé, H., Birt, A., & Boer, D. P. (2000). Profiles of psychopathy in incarcerated sexual offenders. *Criminal Justice and Behavior, 27*, 216–233.
- Salekin, R. T. (2002). Psychopathy and therapeutic pessimism: Clinical lore or clinical reality? *Clinical Psychology Review, 22*, 79–112.
- Salekin, R. T., Rogers, R., & Sewell, K. W. (1996). A review and meta-analysis of the Psychopathy Checklist and Psychopathy Checklist—Revised: Predictive validity of dangerousness. *Clinical Psychology: Science and Practice, 3*, 203–215.
- Sewall, L. A., & Olver, M. E. (2019). Psychopathy and treatment outcome: Results from a sexual violence reduction program. *Personality Disorders: Theory, Research, and Treatment, 10*, 59–69.
- Shields, I. W., & Simourd, D. J. (1991). Predicting predatory behavior in a population of incarcerated young offenders. *Criminal Justice and Behavior, 18*, 180–194.
- Simourd, L., & Andrews, D. A. (1994). Correlates of delinquency: A look at gender differences. *Forum on Correctional Research, 6*, 26–31.
- Simourd, D. J., & Hoge, R. (2000). Criminal psychopathy: A risk-need perspective. *Criminal Justice and Behavior, 27*, 256–272.
- Simourd, D. J., & Olver, M. E. (2002). The future of criminal attitudes research and practice. *Criminal Justice and Behavior, 29*, 427–446.
- Simourd, D. J., Olver, M. E., & Brandenburg, B. (2016). Changing criminal attitudes among incarcerated offenders: Initial examination of a structured treatment program. *International Journal of Offender Therapy and Comparative Criminology, 60*, 1425–1445.
- Sutherland, E. H. (1947). *Principles of criminology* (6th ed.). Philadelphia, PA: J. B. Lippincott.
- Sykes, G. M., & Matza, D. (1957). Techniques of neutralization: A theory of delinquency. *American Sociological Review, 22*, 664–670.
- Witte, T. D., Di Placido, C., Gu, D., & Wong, S. C. (2006). An investigation of the validity and reliability of the Criminal Sentiments Scale in a sample of treated sex offenders. *Sexual Abuse: A Journal of Research and Treatment, 18*, 249–258.
- Wong, S. C. (1984). *The criminal and institutional behaviors of psychopaths* (User Report No. 1984-87). Ottawa, ON: Ministry of the Solicitor General of Canada.

- Wong, S. C. (2015). Treatment of violence prone individuals with psychopathic personality traits. In J. Livesley, G. Dimaggio, & J. Clarkin (Eds.), *Integrated treatment of personality disorder: A modular approach* (pp. 345–376). New York, NY: Guilford Press.
- Wong, S. C., Gordon, A., Gu, D., Lewis, K., & Olver, M. E. (2012). The effectiveness of violence reduction treatment for psychopathic offenders: Empirical evidence and a treatment model. *International Journal of Forensic Mental Health, 11*, 336–349.
- Yang, M., Wong, S. C., & Coid, J. (2010). The efficacy of violence prediction: A meta-analytic comparison of nine risk assessment tools. *Psychological Bulletin, 136*, 740–767.

Table 3.1

Pre- and Post-Treatment Comparisons on the CSS

CSS Scale	Mean (standard deviation)						
	<i>N</i>	Pre-treatment	<i>N</i>	Post-treatment	<i>N</i>	Change	<i>d</i> change
LCP	281	90.38 (14.76)	213	96.21 (15.89)	212	5.01 (11.85)	0.38***
TLV	279	22.70 (6.19)	213	20.74 (6.38)	211	1.75 (5.00)	0.31***
ICO	279	15.78 (3.39)	212	14.65 (3.33)	210	0.93 (3.47)	0.34***
Total CSS	279	51.85 (21.90)	212	61.00 (23.42)	210	7.82 (16.97)	0.40***

Note: *** $p \leq .001$, ** $p \leq .01$, * $p < .05$. The *d* denotes the magnitude of difference between scores at pre- versus posttreatment in standard deviation units. LCP = Law, Court, Police; TLV = Tolerance toward Law Violations; ICO = Identification of Criminal Others.

Table 3.2Associations (Pearson's *r*) Between PCL-R and Pre- and Post-Treatment CSS Scores

CSS Scale	PCL-R score						
	Interpersonal	Affective	Lifestyle	Antisocial	Factor 1	Factor 2	Total
LCP							
Pre-treatment	-.02	-.17**	-.23***	-.24***	-.11	-.27***	-.22***
Post-treatment	.16*	-.05	-.17*	-.21**	.05	-.21**	-.10
TLV							
Pre-treatment	-.02	.13*	.19**	.20***	.07	.22***	.17**
Post-treatment	-.13	.11	.18**	.19**	-.00	.20**	.12
ICO							
Pre-treatment	.02	.16**	.25***	.33***	-.11	.33***	.26***
Post-treatment	.01	.13	.25***	.31***	.08	.31***	.23***
Total							
Pre-treatment	-.01	-.18**	-.25***	-.28***	-.11	-.29***	-.24**
Post-treatment	.13	-.09	-.20**	-.23***	.02	-.24***	-.13

Note: *** $p \leq .001$, ** $p \leq .01$, * $p < .05$. $N_s = 210 - 281$. PCL-R = Psychopathy Checklist-Revised; CSS = Criminal Sentiments Scale; LCP = Law, Court, Police; TLV = Tolerance toward Law Violations; ICO = Identification of Criminal Others.

Table 3.3Associations (Pearson's r) Between Residual PCL-R and Residual Treatment CSS Scores

CSS Scale	PCL-R score						
	Interpersonal	Affective	Lifestyle	Antisocial	Factor 1	Factor 2	Total
LCP	.23***	-.03	.01	-.03	.20**	-.04	.14*
TLV	.21**	-.08	-.05	-.01	.13	-.08	.04
ICO	.08	-.03	-.06	-.09	.05	-.16*	-.09
Total	.21**	-.03	-.01	-.02	.18**	-.04	.12

Note: *** $p \leq .001$, ** $p \leq .01$, * $p < .05$. $N_s = 210 - 281$. PCL-R = Psychopathy Checklist-Revised; CSS = Criminal Sentiments Scale; LCP = Law, Court, Police; TLV = Tolerance toward Law Violations; ICO = Identification of Criminal Others. With the exception of the total score, the PCL-R scores used in these associations are residual scores, allowing for the examination of associations between each factor and facet with change while controlling for the other factor and facets. Similarly, treatment change scores are also residual scores, allowing for statistical control of the pre-treatment score

Table 3.4

Predictive Accuracy of Pre-Treatment and Post-Treatment CSS Scores for Sexual, Violent, and General Recidivism

CSS Scale	Sexual recidivism						Violent recidivism						General recidivism					
	5-year		10-year		Overall		5-year		10-year		Overall		5-year		10-year		Overall	
	AUC	95%CI	AUC	95%CI	AUC	95%CI	AUC	95%CI	AUC	95%CI	AUC	95%CI	AUC	95%CI	AUC	95%CI	AUC	95%CI
LCP																		
Pre-treatment	.59	.48,.70	.56	.46,.65	.58	.49,.66	.62**	.53,.70	.58	.50,.67	.60*	.52,.68	.65***	.57,.72	.63**	.55,.72	.63**	.56,.71
Post-treatment	.56	.45,.67	.51	.41,.60	.52	.43,.61	.65***	.57,.73	.56	.47,.64	.59*	.51,.66	.62**	.54,.70	.60*	.52,.69	.62**	.54,.70
TLV																		
Pre-treatment	.55	.44,.66	.53	.44,.63	.54	.45,.63	.62**	.53,.71	.58	.49,.66	.60*	.52,.68	.66***	.58,.73	.65**	.57,.73	.66***	.59,.74
Post-treatment	.58	.48,.69	.53	.44,.63	.55	.47,.64	.68***	.60,.76	.59*	.50,.67	.61**	.53,.68	.65***	.58,.73	.63**	.54,.71	.66***	.58,.73
ICO																		
Pre-treatment	.60	.50,.71	.61*	.52,.70	.59	.50,.70	.63**	.55,.71	.62**	.54,.71	.62**	.54,.69	.64***	.57,.72	.65**	.57,.74	.65***	.57,.72
Post-treatment	.51	.41,.62	.50	.41,.59	.50	.42,.58	.66***	.58,.74	.59	.50,.67	.61**	.53,.69	.62**	.54,.70	.59*	.50,.68	.61**	.53,.69
Total																		
Pre-treatment	.60	.49,.71	.56	.47,.66	.57	.49,.66	.64**	.55,.72	.59*	.51,.68	.61**	.54,.69	.67***	.59,.75	.65***	.57,.74	.66***	.58,.73
Post-treatment	.57	.47,.68	.51	.41,.60	.53	.44,.62	.68***	.60,.76	.57	.49,.66	.60*	.53,.68	.65***	.57,.72	.62*	.53,.70	.64***	.57,.72

Note: *** $p \leq .001$, ** $p \leq .01$, * $p < .05$. $N_s = 176 - 212$. CSS = Criminal Sentiments Scale; LCP = Law, Court, Police; TLV = Tolerance toward Law Violations; ICO = Identification of Criminal Others.

Table 3.5

Predictive Accuracy of the PCL-R for Sexual, Violent, and General Recidivism

PCL-R Scale	Sexual recidivism						Violent recidivism						General recidivism					
	5-year		10-year		Overall		5-year		10-year		Overall		5-year		10-year		Overall	
	AUC	95%CI	AUC	95%CI	AUC	95%CI	AUC	95%CI	AUC	95%CI	AUC	95%CI	AUC	95%CI	AUC	95%CI	AUC	95%CI
Interpersonal	.50	.41, .59	.48	.40, .56	.49	.42, .56	.52	.45, .59	.49	.41, .56	.52	.46, .59	.51	.44, .58	.47	.39, .55	.49	.42, .56
Affective	.52	.43, .61	.47	.39, .55	.49	.42, .57	.59*	.52, .66	.54	.46, .61	.58*	.52, .65	.59*	.52, .65	.52	.44, .60	.55	.48, .62
Lifestyle	.62**	.55, .70	.58	.50, .66	.58*	.51, .65	.68***	.62, .75	.69***	.62, .75	.70***	.63, .76	.72***	.66, .78	.67***	.60, .74	.68***	.62, .75
Antisocial	.60*	.53, .68	.65***	.57, .72	.62**	.55, .69	.71***	.65, .77	.71***	.64, .78	.70***	.64, .76	.77***	.71, .83	.71***	.63, .78	.71***	.64, .77
Factor 1	.51	.42, .60	.47	.39, .55	.49	.41, .56	.56	.49, .63	.52	.44, .59	.56	.49, .63	.56	.49, .62	.50	.42, .58	.52	.45, .60
Factor 2	.63**	.55, .70	.63**	.56, .71	.62**	.55, .69	.72***	.66, .78	.73***	.66, .79	.73***	.67, .79	.78***	.73, .84	.72***	.65, .79	.72***	.66, .79
Total	.60*	.52, .67	.59*	.51, .66	.58*	.51, .65	.68***	.62, .75	.67***	.60, .74	.69***	.63, .75	.72***	.66, .78	.66***	.58, .74	.67***	.60, .74

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. $N_s = 231 - 282$. PCL-R = Psychopathy Checklist Revised.

Table 3.6

Cox Regression Survival Analyses: Associations Between Treatment Change Scores and Recidivism Controlling for PCL-R Scores

Regression Models	Sexual recidivism				Violent recidivism				General recidivism				
	1-4	<i>B</i>	<i>SE</i>	<i>p</i>	e^B [95%CI]	<i>B</i>	<i>SE</i>	<i>p</i>	e^B [95%CI]	<i>B</i>	<i>SE</i>	<i>p</i>	e^B [95%CI]
Model 1													
Block 1													
LCP Change	.011	.012	.337	1.011 [0.989, 1.034]	-.009	.009	.287	0.991 [0.974, 1.008]	-.008	.008	.289	0.992 [0.977, 1.007]	
Block 2													
LCP Change	.007	.011	.552	1.007 [0.985, 1.030]	-.019	.009	.026	0.981 [0.965, 0.998]	-.015	.007	.041	0.985 [0.971, 0.999]	
PCL-R Total	.036	.018	.042	0.863 [1.001, 1.074]	.067	.014	<.001	1.070 [1.041, 1.099]	.059	.012	<.001	1.060 [1.035, 1.086]	
Model 2													
Block 1													
TLV Change	-.032	.029	.272	0.969 [0.916, 1.025]	-.051	.022	.020	0.950 [0.910, 0.992]	-.034	.019	.076	0.967 [0.931, 1.004]	
Block 2													
TLV Change	-.036	.029	.201	0.964 [0.912, 1.020]	-.068	.022	.002	0.934 [0.895, 0.976]	-.045	.019	.017	0.956 [0.921, 0.992]	
PCL-R Total	.042	.018	.020	1.043 [1.007, 1.081]	.069	.014	<.001	1.071 [1.042, 1.101]	.058	.012	<.001	1.060 [1.035, 1.085]	
Model 3													
Block 1													
ICO Change	.032	.043	.464	1.032 [0.948, 1.124]	-.079	.034	.020	0.924 [0.864, 0.987]	-.048	.030	.112	0.953 [0.899, 1.011]	
Block 2													
ICO Change	.039	.042	.346	1.040 [0.958, 1.129]	-.073	.033	.026	0.930 [0.873, 0.991]	-.044	.029	.121	0.957 [0.904, 1.012]	
PCL-R Total	.042	.018	.019	1.043 [1.007, 1.080]	.060	.013	<.001	1.062 [1.035, 1.090]	.053	.012	<.001	1.055 [1.031, 1.080]	
Model 4													
Block 1													
CSS Total	.007	.008	.378	1.007 [0.991, 1.024]	-.009	.006	.142	0.991 [0.979, 1.003]	-.006	.006	.251	0.994 [0.983, 1.004]	
Block 2													
CSS Total	.005	.008	.578	1.005 [0.989, 1.021]	-.016	.006	.010	0.984 [0.972, 0.996]	-.011	.005	.035	0.989 [0.978, 0.999]	
PCL-R Total	.039	.018	.030	1.040 [1.004, 1.077]	.070	.014	<.001	1.072 [1.043, 1.102]	.059	.012	<.001	1.061 [1.036, 1.087]	

Note: significant p-values for model predictors in bold font. Models 1, $N = 212$; Model 2, $N = 211$; Models 3 and 4, $N = 210$. PCL-R = Psychopathy Checklist-Revised. CSS = Criminal Sentiments Scale; LCP = Law, Court, Police; TLV = Tolerance toward Law Violations; ICO = Identification of Criminal Others. Treatment change scores are residual scores, allowing for statistical control of the pre-treatment score.

Table 3.7

Comparison of High and Low PCL-R Scoring Groups on CSS Scores

CSS Score	PCL-R < 25		PCL-R ≥ 25		F	η_p^2
	M	SD	M	SD		
LCP						
Pre-Treatment	92.90	14.31	87.20	16.17	6.34*	.030
Post-Treatment	96.53	15.52	95.82	16.86	.086	.000
Change	3.64	11.07	8.62	13.03	7.89**	.037
TLV						
Pre-Treatment	21.93	6.42	23.69	6.00	3.36	.016
Post-Treatment	20.55	6.26	20.85	6.34	.100	.000
Change	1.38	4.83	2.84	5.14	3.78	.018
ICO						
Pre-Treatment	15.25	3.43	16.41	3.14	5.20*	.024
Post-Treatment	14.30	3.20	15.52	3.58	5.90*	.028
Change	0.95	3.23	0.89	4.03	.013	.000
CSS Total						
Pre-Treatment	55.71	21.99	47.10	22.80	6.50*	.030
Post-Treatment	61.68	23.04	59.44	24.61	.391	.002
Change	5.97	15.75	12.34	19.00	6.27*	.029

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. $N_s = 210 - 281$. PCL-R = Psychopathy Checklist Revised. CSS = Criminal Sentiments Scale; LCP = Law, Court, Police; TLV = Tolerance toward Law Violations; ICO = Identification of Criminal Others. Partial eta-squared is the measure of effect size for the comparisons.

Table 3.8

Comparisons of Recidivism Rates According to High x Low TLV and PCL-R Scores Group Membership

Recidivism Outcome (Yes/No)	Low TLV, Low PCL-R	Low TLV, High PCL-R	High TLV, Low PCL-R	High TLV, High PCL-R	χ^2	Cramer's V
Sexual Recidivism						
5-year fixed	20.2% (24 / 119)	18.3% (13 / 71)	13.3% (4 / 30)	24.1% (7 / 29)	1.23	.070
10-year fixed	30.9% (29 / 94)	26.2% (17 / 65)	32.1% (9 / 28)	37.5% (9 / 24)	1.18	.075
Violent Recidivism						
5-year fixed	26.9% (32 / 119)	36.6% (26 / 71)	20.0% (6 / 30)	72.4% (21 / 29)	24.54***	.314
10-year fixed	45.7% (43 / 94)	46.2% (30 / 65)	53.6% (15 / 28)	79.2% (19 / 24)	9.33*	.210
General Recidivism						
5-year fixed	41.2% (49 / 119)	52.1% (37 / 71)	53.3% (16 / 30)	79.3% (23 / 29)	13.93**	.237
10-year fixed	60.6% (57 / 94)	64.6% (42 / 65)	60.7% (17 / 28)	91.7% (22 / 24)	8.55*	.201

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. PCL-R = Psychopathy Checklist Revised. TLV = Tolerance toward Law Violations. Cramer's V is the measure of effect size for the comparisons.

Table 3.9

Comparisons of Recidivism Rates According to High x Low ICO and PCL-R Scores Group Membership

Recidivism Outcome (Yes/No)	Low ICO, Low PCL-R	Low ICO, High PCL-R	High ICO, Low PCL-R	High ICO, High PCL-R	χ^2	Cramer's V
Sexual Recidivism						
5-year fixed	21.6% (25 / 116)	16.2% (12 / 74)	25.0% (5 / 20)	15.4% (6 / 39)	1.63	.081
10-year fixed	31.5% (29 / 92)	25.4% (17 / 67)	47.4% (9 / 19)	27.3% (9 / 33)	3.60	.131
Violent Recidivism						
5-year fixed	28.4% (33 / 116)	33.8% (25 / 74)	25.0% (5 / 20)	56.4% (22 / 39)	11.02*	.210
10-year fixed	44.6% (41 / 92)	47.8% (32 / 67)	57.9% (11 / 19)	69.7% (23 / 33)	6.78	.179
General Recidivism						
5-year fixed	44.0% (51 / 116)	47.3% (35 / 74)	60.0% (12 / 20)	69.2% (27 / 39)	8.47*	.184
10-year fixed	59.8% (55 / 92)	65.7% (44 / 67)	68.4% (13 / 19)	78.8% (26 / 33)	3.98	.137

Note: * $p < .05$, ** $p < .01$, *** $p < .001$. PCL-R = Psychopathy Checklist Revised. ICO = Identification of Criminal Others. Cramer's V is the measure of effect size for the comparisons

Figure 3.1. Survival Analysis: Cumulative Rates of Sexual, Violent, and General Recidivism Rates Among High x Low Psychopathy and High x Low TLV Groups. The overall rates of recidivism were 28.0% ($N = 79$) for sexual recidivism, 53.2% ($N = 150$) for violent recidivism, and 66.3% ($N = 187$) for any recidivism.

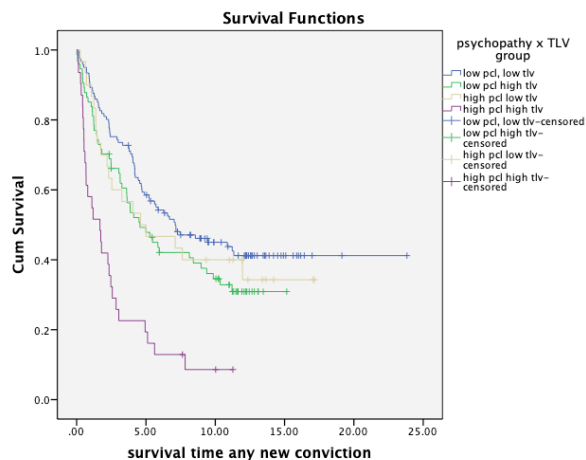
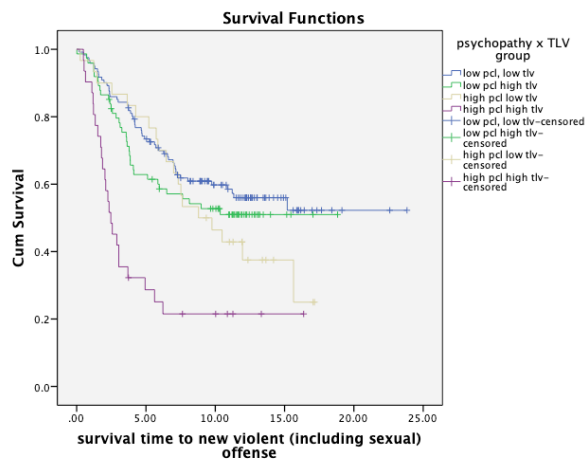
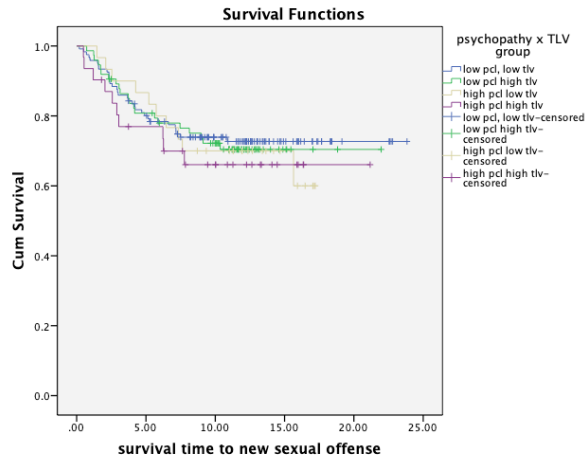
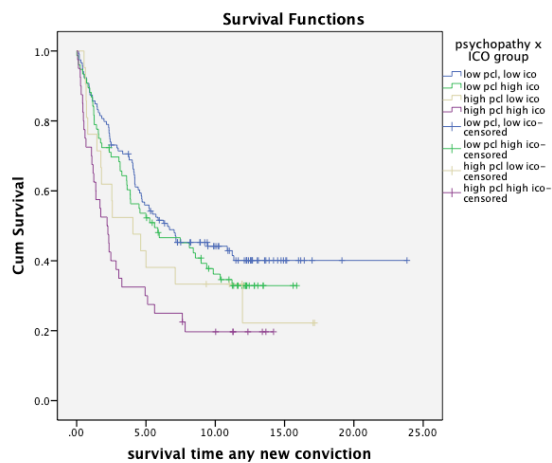
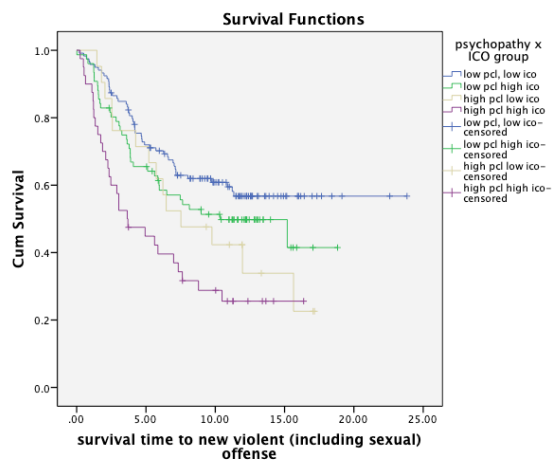
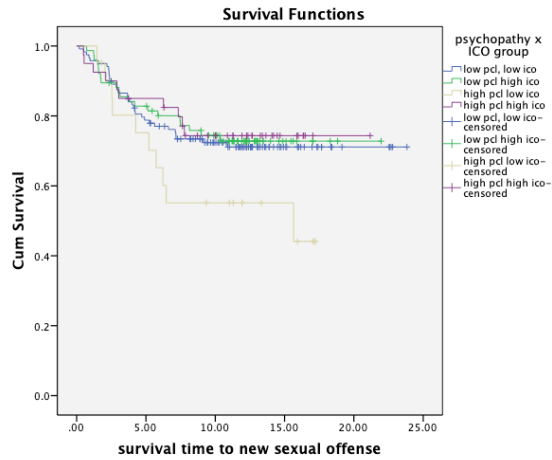


Figure 3.2. Survival Analysis: Cumulative Rates of Sexual, Violent, and General Recidivism Rates Among High x Low Psychopathy and High x Low ICO Groups. The overall rates of recidivism were 28.0% ($N = 79$) for sexual recidivism, 53.2% ($N = 150$) for violent recidivism, and 66.3% ($N = 187$) for any recidivism.



CHAPTER 4.

DISCUSSION

This dissertation aimed to extend the existing literature of the therapeutic response of psychopathy. It featured two manuscripts exploring the associations between psychopathy and treatment change, assessed via self-report. The studies focused on examining treatment change in dynamic psychological and risk-relevant constructs. The dissertation's first study utilized a battery of self-report instruments designed to measure various psychological factors related to sexual offending, whereas the second study looked at self-reported general criminal attitudes. These studies were novel in that they both explored whether the treatment changes observed were risk-relevant. That is, whether treatment change predicted post-treatment recidivism, on its own and after controlling for individual psychopathy scores. Both studies examined the relationships between study variables and the four facets and two factors of psychopathy, allowing for a multifaceted and nuanced understanding of the therapeutic response of psychopathy. The results of the studies have important implications for the field's approach to treatment of individuals with prominent psychopathic traits. This section summarizes these implications, discusses relevant strengths and limitations, and suggests ideas for future research endeavors.

4.1 Evidence of Positive Treatment Change with Psychopathy

Whether or not individuals high in psychopathic traits are amenable to treatment remains a controversial topic. It was not long ago that it was suggested that the treatment of psychopathy is ineffective, and potentially harmful (Harris & Rice, 2006). However, other researchers have been hesitant to draw the same conclusion. They raised concerns about the variability in study methodologies (Salekin, 2002) and subsequent research has demonstrated promising results when individuals are provided with appropriate (i.e., Risk-Need-Responsivity (RNR; Bonta & Andrews, 2007)-based) treatment, psychopathy is measured in a standardized way (i.e., using validated measures such as the Psychopathy Checklist-Revised (PCL-R; Hare, 1991, 2003), and treatment change is measured with relevant outcomes (e.g., recidivism) (Langton, Barbaree, Harkins, & Peacock, 2006; Looman, Abracen, Serin, & Marquis, 2005; Olver & Wong, 2009; Salekin, Worley, & Grimes, 2010; Wong, Gordon, Gu, Lewis, & Olver, 2012).

The results of this dissertation's studies provide evidence against the notion that treatment is ineffective or harmful and support the conclusion that individuals high in

psychopathic traits are amenable to change. Evidence of positive treatment change was observed in both studies, which featured two relatively psychopathic samples (i.e., 27.5% and 30.9% of study 1 and 2 samples obtained a PCL-R of 25 or greater, respectively). Across both studies, there were statistically significant treatment gains observed for nearly all of the study variables. These changes corresponded to values ranging from small-to-large in effect. Small effect size magnitudes were more common among subscales (i.e., Buss-Durkee subscales, Criminal Sentiment Scales (CSS) subscales) rather than full scales, which by nature have less room for change due to a smaller range of possible values. Additional evidence of positive treatment gains was found in comparing study 1's pre- and post-treatment means to that of samples from previous research, where possible. Notably, while many of the study's pre-treatment means resembled means that had been obtained with other offending samples, the post-treatment means were more descriptively similar to that of community-based non-offending samples. Finally, in study 2, those high in psychopathic traits (PCL-R score of ≥ 25) evidenced significantly greater treatment gain in their overall general criminal attitudes and attitudes towards the criminal justice system compared to their low psychopathy (PCL-R < 25) counterpart. However, it is important to keep in mind that those with more traits also had greater pre-treatment scores, affording them more opportunity for change. Nevertheless, the existence of change, especially among those high in psychopathic traits, is promising.

The treatment variables of focus in these two studies are relevant in that they represent factors that are well-researched and acknowledged as having important links to criminal behaviour. Indeed, in both studies there were predictive associations observed between many of the variables in question (i.e., self-reported stress, anger, aggression, criminal attitudes) and recidivism, particularly for violent and general recidivism outcomes. These variables were also the variables most strongly and consistently associated with psychopathy. To this end, the studies provide evidence that individuals with psychopathy are making gains in areas that are of concern for the population and relevant from a rehabilitation perspective, addressing concerns that prior research focused on risk-irrelevant variables (e.g., empathy, guilt) (Salekin, 2002).

4.2 Treatment Focus with Psychopathy

Where we should be focusing our treatment efforts with psychopathy is one of the most important big picture questions that this dissertation hoped to provide additional evidence for. Wong's (Wong, 2015; Wong et al., 2012) two-component model has been instrumental in

advancing the literature of treatment with psychopathy. The results of the dissertation studies provide additional support for a multi-faceted approach to treatment with psychopathy in a couple of ways. First, across both studies, there were differential associations between the variables and psychopathy. In other words, not all of the study's variables had relationships with psychopathy, and the variables that were related to psychopathy were not all related to each facet of psychopathy equally. Under Wong's two-component model, the factor 2, or antisocial and lifestyle psychopathy traits, are emphasized as the focus of intervention efforts (Wong, 2015). These are the factors that are linked to offending behaviour and are more amenable to change than the rigid personality characteristics that underpin factor 1 (i.e., interpersonal and affective) traits. In practical terms, this translates to providing interventions that are focused on criminogenic concerns found within the RNR model of offender rehabilitation (Bonta & Andrews, 2007), including substance use, antisocial cognitions, criminal attitudes, and problems in various lifestyle domains (e.g., work, leisure, relationships). The present studies provide additional support for this in that the variables most consistently linked to psychopathy were those that resembled these criminogenic concerns. Additionally, in study 2, there was a higher prevalence of criminal attitudes among those high in psychopathic traits, with evidence to suggest that this was accounted for by factor 2 traits. This provides both theoretical support for the two-component model and supports the notion that criminogenic concerns such as antisocial cognitions, criminal attitudes, and problems in one's life are highly relevant targets for individuals with psychopathy. In the present studies, endorsement of the use of physical violence and the presence of general criminal attitudes were particularly important from a treatment perspective, as positive treatment change in these areas was associated with reduced recidivism rates even after controlling for psychopathy.

A goal of this dissertation was to explore treatment change across the facets of psychopathy. It was hoped that this would help further our understanding of how individuals with psychopathic traits respond to treatment. Based on Wong's two-component model and prior research examining the relationships between psychopathy facets and various treatment processes (DeSorcy, Olver, & Wormith, 2020; Olver, 2016; Olver & Wong, 2011; Sewall & Olver, 2019), differential associations among the facets were expected. In study 1, affective and lifestyle traits were associated with reduced treatment change, while there was evidence of positive treatment change among the antisocial and interpersonal psychopathy traits. In study 2,

factor 1 traits, and in particular interpersonal traits, demonstrated the most consistent pattern with treatment change. The associations observed indicated that these traits were associated with the most self-reported positive treatment change. Taken together, these findings suggest that different psychopathic traits respond to treatment differently.

The treatment change pattern observed generally supports Wong's two-component model, with some interesting exceptions. First and foremost, in study 1, the affective facet was linked with reduced treatment change, which is generally consistent with prior research that has found these traits to be linked to poor treatment outcomes in terms alliance building, treatment completion, and treatment progress (DeSorcy et al., 2020; Olver, 2016; Sewall & Olver, 2019). Also consistent with the model, in study 1, factor 2 traits captured by the antisocial facet appeared to be the most amenable to change and were associated with changes in areas that were linked to a reduction in recidivism following treatment (i.e., overall hostility, endorsement of physical violence). However, this pattern was not observed with the other facet that comprises factor 2, the lifestyle traits. This may indicate that these traits have greater responsivity considerations than initially conceptualized, which is in line with previous research indicating that those high in lifestyle traits have poorer treatment performance, perhaps due to reduced work ethic among those high in these traits (DeSorcy et al., 2020). Another point of exception was the interpersonal traits, which were generally linked to higher self-reported treatment change in both studies. Taken at face value, the findings would suggest that these traits are amenable to change and is inconsistent with the premise of Wong's model that these traits are more likely to be stable, enduring, and less likely to change in treatment. However, a more likely conclusion for this research's findings may be that those high in interpersonal traits are more likely to endorse positive changes, regardless of whether genuine change has occurred. Theoretically, this is the facet most associated with grandiosity and the use of manipulation and deceit is more likely to be present. In this sense, these traits would continue to be highly relevant as a responsivity issue and in particular, we may need to be concerned about impression management interfering with genuine treatment progress.

4.3 Strengths, Limitations, and Future Directions

There are notable strengths and limitations relevant to both dissertation studies. It is common practice in forensic research to obtain data for study measures through post-hoc coding of files. This introduces the potential of rater biases, particularly for treatment studies where pre-

treatment data can influence coding decisions about post-treatment data and vice versa. It is not uncommon for this method of data collection to result in missing data for items on measures of interest, as researchers are limited to what is available on the file. In both studies, the measures were administered in real time as part of routine service delivery. This improves the likelihood that the data is an accurate reflection of the point in time in which it is being obtained (i.e., pre-treatment vs. post-treatment) and allows data to be collected without concern that raters are biased by extraneous file information in coding these variables. This method of measure administration is also an ecological representation of how the measures would be implemented in a treatment setting, strengthening our generalizability of the results in using self-report measures to assess pre-post-treatment change. However, these strengths are also met with the limitation that variables were constrained to what had been selected and implemented by the treatment program. This prevented the inclusion of additional measures that are relevant within the current literature. Additionally, study data was obtained over a span of several years of program operation during which time measures were dropped and added according to the evidence available to the literature at the time. This resulted in unequal *ns* for the data and may have limited the power of study analyses in some cases.

Another important strength of the studies was the lengthy follow-up period (i.e., 18 years in study 1 and 12 years in study 2). This provided ample opportunity for the samples to engage in post-treatment recidivistic behaviours and allowed for an examination of recidivism outcomes at various time periods. This increases confidence in the study's results pertaining to the relationships between study variables and recidivism, particularly for results that suggest reduced recidivism rates. Of note, the lengthy follow-up reduces the likelihood that the results are simply due to a lack of opportunity to reoffend. However, it is important to keep in mind with recidivism that the data is limited to known offending behaviours. It is plausible that individuals engaged in offending behaviours and did not get caught, or that the behaviour did not result in a new conviction. Similarly, a level of caution is warranted in drawing any causal conclusions about the treatment program. Without a control group, there are limitations in our certainty of the influence of treatment on the changes observed and in subsequent post-treatment recidivism rates. There is a level of scientific rigour that is not possible to control for in research of this nature, which limits the extent to which we can attribute changes (positive, negative, or neutral) to treatment. However, this is partially offset by the study's treatment program, The Clearwater

Program, which has demonstrated itself as credible change agent through repetition of findings in previous research.

Finally, the self-report nature of the measures used in both of the studies has both strengths and limitations. Given that the population in question is known to possess characteristics of deceit and manipulation, there are increased concerns about the accuracy of reporting. However, self-report data is also a strength in and of itself in that it provides access to thought content that may not be as readily available or known otherwise. This is particularly relevant for variables related to one's attitudes, which are often inferred based on behaviours or statements made by individuals. In study 2, the self-report data obtained on a measure the CSS was incremental to individual PCL-R scores in predicting recidivism. Arguably, obtaining PCL-R scores requires some inference of attitudes and cognitions in order to assess psychopathy traits (e.g., assessing the extent to which someone takes responsibility for their actions). In this sense, regardless of the validity of the data obtained, it appeared to offer unique information that was relevant and important from a rehabilitation perspective.

Many of the dissertation's findings are preliminary and future efforts should include replication of findings. There are a few notable considerations for future research. First, where possible, future studies may wish to include a comparison group. For practical and ethical reasons, comparisons may be most likely with individuals who drop out or do not complete treatment. Although this introduces other potential confounding variables (i.e., factors that lead some individuals to drop out or not complete treatment and not others), it may provide useful information about treatment change for individuals who successfully complete treatment compared to those who do not. Second, future research may wish to explore treatment change using additional measures not included in these studies. One potentially important area to explore is treatment change in offence-specific attitudes among those high in psychopathic traits. Research suggests that sexual offence-specific attitudes have more relevance for sexual offending than general criminal attitudes (Helmus, Babchishin, & Mann, 2013; Olver, Stockdale, & Wormith, 2014). This likely explains the lack of significant associations between criminal attitudes and sexual offending in the current research, which focused on general criminal attitudes. Additionally, given the relevance of sexual interests in sexual offending behaviour, future research may wish to include measures of sexual interest. This would allow for examination of the incremental contributions of treatment change in the prediction of recidivism,

controlling for one of the strongest predictors of sexual reoffence (Hanson & Morton-Bourgon, 2005). Finally, it is recommended that future research endeavours continue to explore the relationships between treatment change and the facets of psychopathy. There appears to be sufficient evidence supporting the notion that different psychopathic traits respond differently to treatment and additional research is needed to clarify these relationships.

References

- Bonta, J., & Andrews, D. A. (2007). *Risk-need-responsivity model for offender assessment and rehabilitation* (User Report No. 2007-06). Ottawa, Canada: Public Safety Canada
- DeSorcy, D. R., Olver, M. E., & Wormith, J. S. (2020). Working alliance and psychopathy: Linkages to treatment outcome in a sample of treated sexual offenders. *Journal of Interpersonal Violence, 35*, 1739–1760.
- Hanson, R. K. & Morton-Bourgon, K. E. (2005). The characteristics of persistent sexual offenders: A meta-analysis of recidivism studies. *Journal of Consulting and Clinical Psychology, 73*, 1154-1163.
- Hare, R. D. (1991). *The Hare Psychopathy Checklist–Revised*. Toronto, ON: Multi-Health Systems.
- Hare, R. D. (2003). *Manual for the Revised Psychopathy Checklist* (2nd ed.). Toronto, ON: Multi-Health Systems.
- Harris, G., & Rice, M. (2006). Treatment of psychopathy: A review of empirical findings. In C. Patrick (Ed.), *Handbook of psychopathy* (pp. 555–572). New York, NY: Guilford.
- Helmus, L., Hanson, R. K., Babchishin, k. M., & Mann, R. E. (2013). Attitudes supportive of sexual offending predict recidivism: A meta-analysis. *Trauma, Violence, & Abuse, 14*, 34–53.
- Langton, C. M., Barbaree, H. E., Harkins, L., & Peacock, E. J. (2006). Sex offenders’ response to treatment and its association with recidivism as a function of psychopathy. *Sexual Abuse: Journal of Research and Treatment, 18*, 99–120.
- Looman, J., Abracen, J., Serin, R., & Marquis, P. (2005). Psychopathy, treatment change, and recidivism in high-risk, high-need sexual offenders. *Journal of Interpersonal Violence, 20*, 549–568.
- Olver, M. E. (2016). Treatment of psychopathic offenders: Evidence, issues, and controversies. *Journal of Community Safety and Well-Being, 1*, 75–82.
- Olver, M. E., Lewis, K., & Wong, S. C. (2013). Risk reduction treatment of high-risk psychopathic offenders: The relationship of psychopathy and treatment change to violent recidivism. *Personality Disorders: Theory, Research, and Treatment, 4*, 160–167.

- Olver, M. E., Stockdale, K. C., & Wormith, J. S. (2014). Thirty years of research on the Level of Service Scales: A meta-analytic examination of predictive accuracy and sources of variability. *Psychological Assessment, 26*, 156–176.
- Olver, M. E., & Wong, S. C. (2009). Therapeutic responses of psychopathic sexual offenders: Treatment attrition, therapeutic change, and long-term recidivism. *Journal of Consulting and Clinical Psychology, 77*, 328–336.
- Olver, M. E., & Wong, S. C. (2011). Predictors of sex offender treatment dropout: Psychopathy, sex offender risk, and responsivity implications. *Psychology, Crime & Law, 17*, 457–471.
- Salekin, R. (2002). Psychopathy and therapeutic pessimism: Clinical lore or clinical reality? *Clinical Psychology Review, 22*, 79–112.
- Salekin, R., Worley, C. & Grimes, R. (2010). Treatment of psychopathy: A review and brief introduction to the mental model approach for psychopathy. *Behavioral Sciences and the Law, 28*, 235–266.
- Sewall, L. A., & Olver, M. E. (2019). Psychopathy and treatment outcome: Results from a sexual violence reduction program. *Personality Disorders: Theory, Research, and Treatment, 10*, 59–69.
- Wong, S. C. (2015). Treatment of violence prone individuals with psychopathic personality traits. In J. Livesley, G. Dimaggio, & J. Clarkin (Eds.), *Integrated treatment of personality disorder: A modular approach* (pp. 345–376). New York, NY: Guilford Press.
- Wong, S. C., Gordon, A., Gu, D., Lewis, K., & Olver, M. E. (2012). The effectiveness of violence reduction treatment for psychopathic offenders: Empirical evidence and a treatment model. *International Journal of Forensic Mental Health, 11*, 336–349.

Appendix A

University of Saskatchewan Behavioural Research Ethics Board Certificate



Behavioural Research Ethics Board (Beh-REB) 19-Mar-2021

Certificate of Approval

Application ID: 2609

Principal Investigator: Mark Olver

Department: Department of Psychology

Locations Where Research

Activities are Conducted: Toronto, Canada

Student(s): Carissa Augustyn

Funder(s):

Sponsor: University of Saskatchewan

Title: Psychopathy and Psychometric Treatment Change in Men with Histories of Sexual Offending

Approved On: 19-Mar-2021

Expiry Date: 19-Mar-2022

Approval Of: Behavioural Research Ethics Application

Acknowledgment Of:

Review Type: Delegated Review

CERTIFICATION

The University of Saskatchewan Behavioural Research Ethics Board (Beh-REB) is constituted and operates in accordance with the current version of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TPCS 2 2018). The University of Saskatchewan Behavioural Research Ethics Board has reviewed the above-named project. The proposal was found to be acceptable on ethical grounds. The principal investigator has the responsibility for any other administrative or regulatory approvals that may pertain to this project, and for ensuring that the authorized project is carried out according to the conditions outlined in the original protocol submitted for ethics review. This Certificate of Approval is valid for the above time period provided there is no change in experimental protocol or consent process or documents.

Any significant changes to your proposed method, or your consent and recruitment procedures should be reported to the Chair for Research Ethics Board consideration in advance of its implementation.

ONGOING REVIEW REQUIREMENTS

In order to receive annual renewal, a status report must be submitted to the REB Chair for Board consideration within one month prior to the current expiry date each year the project remains open, and upon project completion. Please refer to the following website for further instructions: <https://vpresearch.usask.ca/researchers/forms.php>.

***Digitally Approved by Patricia Simonson
Vice-Chair, Behavioural Research Ethics Board
University of Saskatchewan***